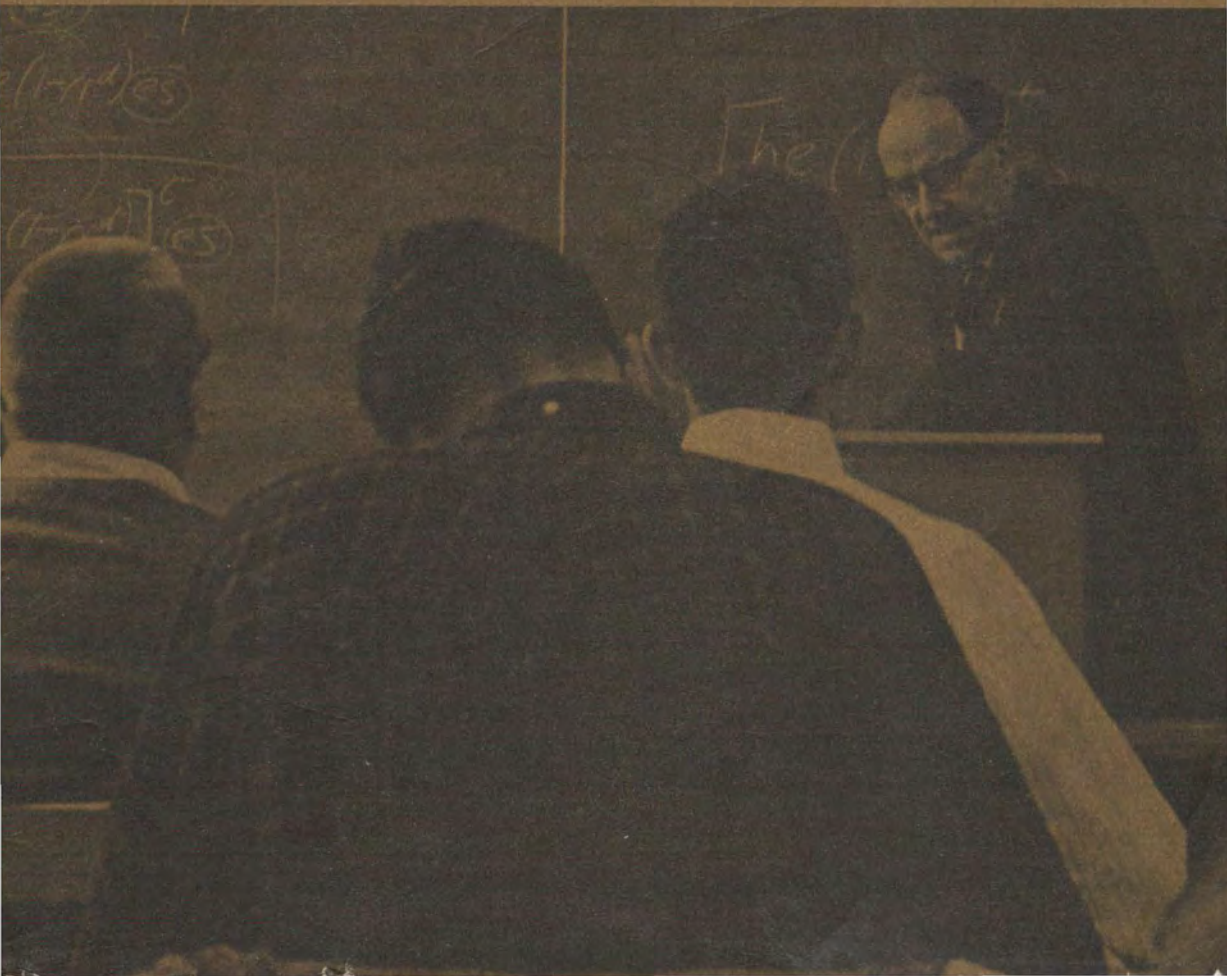


# University Academic Policies and Course Offerings

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## THE OHIO STATE UNIVERSITY BULLETIN









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# University Academic Requirements

## STUDENT RESPONSIBILITY

The student is responsible for knowing his own standing scholastically in reference to the published regulations and standards of the University and of his college.

## THE MARKING AND THE POINT SYSTEM

The grade marks given in all colleges of the University are as follows:

- A** Highest quality of passing work; for each credit hour, 4 credit points shall be allowed.
- B** Second quality of passing work; for each credit hour, 3 credit points shall be allowed.
- C** Third quality of passing work; for each credit hour, 2 credit points shall be allowed.
- D** Lowest quality of passing work; for each credit hour, 1 credit point shall be allowed.
- E** Failed. This mark indicates (1) that the student has done failing work or (2) that he was absent from the final examination without excuse and his work in the course did not justify a passing mark. Credit for a course in which the Mark E (Failed) has been received can be obtained only by repeating and passing the work in class. (See Rule 37.09.)
- H** Honors. This mark shall be used only by the College of Medicine for a student enrolled in the curriculum leading to the degree, Doctor of Medicine, when that student has completed a course in that curriculum with an exceptionally high degree of academic performance. H (Honors) credit shall be counted as hours only and shall not be considered in determining a student's point-hour ratio under Rule 37.05.
- I** Incomplete

Section 1. An I (Incomplete) indicates (1) that the work of the student in the course is qualitatively satisfactory, but that for legitimate reasons a small fraction remains to be completed; or (2) that the record of the student in the course justifies the expectation that he will obtain a passing mark, but he has been unavoidably absent from the final examination.

Section 2. The Mark I (Incomplete) shall be reported on the grade card together with the mark which the Registrar is authorized to enter on the student's official record if the work is not completed and a different mark reported to the Registrar in the manner and within the time herein-after provided. The instructor shall also furnish the chairman of the department or the director of the school with a statement of the work required to be completed.

Section 3. The student must complete the work and the instructor must report the final mark at the earliest possible time, but not later than six weeks following the quarter in which the I (Incomplete) was received. Upon the petition of the student within the six weeks' period, the executive committee of the college in which the student is enrolled (or, if not enrolled, of the college of last enrollment) may for good reason allow a student additional time in which to complete the work. Generally, this shall not be longer than the end of the quarter following the quarter in which the I (Incomplete) was received. Any decision of the executive committee extending the period shall set forth the time in which the student shall complete the work and a copy of the decision shall be forwarded to the Registrar.

Section 4. As soon as the incomplete work has been made up, the instructor, or in the case of his absence from the University, the department chairman or the director of the school, shall file the proper mark in the Registrar's Office. Until such time as the final mark is recorded, the credit hours in the incomplete course shall not be counted or considered for any purpose except that of men's intercollegiate athletic eligibility.

Section 5. In no case shall a student who has received the mark I (Incomplete) be permitted to repeat the course in which such mark was received until such time as the I (Incomplete) has been removed in the manner hereinbefore provided, and then only in such cases as fall within Rule 37.09.

- P** Progress. This mark indicates that the student has shown satisfactory progress in courses that extend over more than one quarter. Until such time as a final mark is recorded, the credit hours in a P (Progress) course shall not be counted for any purpose.
- R** Audit. This mark indicates that the student has registered to audit the course. No credit hours shall be awarded for this mark. (See Rule 37.11.)
- S** Satisfactory. This mark shall be used as a final mark only for (1) a graduate student who has completed satisfactorily his thesis or dissertation research, (2) a graduate student who has completed satisfactorily a special problem or minor problem course in which the instructor works directly with the individual graduate student,



(3) a graduate student who has completed satisfactorily a literature review course or seminar designated by the Dean of the Graduate School as qualifying for the mark of S, (4) a student enrolled in the College of Medicine in a curriculum leading to the degree, Doctor of Medicine, when that student has completed satisfactorily a course in that curriculum, and (5) a student who has completed satisfactorily a professional education course in student teaching. A student who would be entitled to the mark of S (Satisfactory) if he had completed his work satisfactorily, but who does not complete his work satisfactorily, shall receive the mark of E (Failed). S (Satisfactory) credit shall be counted as hours only and shall not be considered in determining a student's point-hour ratio under Rule 37.05.

**T** Temporarily excused. This mark applies only to military, air, or naval science; physical education; or hygiene. No credit hours shall be awarded to a course in which a student received a T (Temporarily excused) mark.

**X** Permanently excused. This mark applies only to military, air, or naval science; physical education; or hygiene. No credit hours shall be awarded to a course in which a student received an X (Permanently excused) mark.

#### **EM Examination**

Section 1. This mark indicates credit given to students registered in the University on the basis of examinations taken prior to or after admission to the University. The level of achievement which must be demonstrated by the student on these examinations in order to receive Em (Examination) credit shall be determined by the department or school in which the course for credit is being given is taught. This credit, up to a maximum of 45 quarter credit hours, or of 70 quarter credit hours in the case of students registered in the School of Nursing who have completed diploma nursing programs and are licensed registered nurses, shall be assigned only upon the authorization of the chairman of such department or the director of such school and with the approval of the executive committee of the college in which the student is registered. Additional examination quarter credit hours may be assigned in the same manner but only with the prior approval of the Faculty Council.

Section 2. Examination credit shall not be given to a student for a course in which he has received a mark at this University. No credit points are allowed for courses in which a mark of Em (Examination) is given.

**K** Credit. This mark shall be used for work credited from other institutions and service schools and by the Director of Admissions only. K credit shall

be counted as hours only and shall not be considered in determining a student's point-hour ratio under Rule 37.05.

#### **REPETITION OF COURSES**

A student who has received a mark of E (Failed) in a required course at this University may repeat the course for credit only as provided in Faculty Rule 37.07. A student who has received a mark of E (Failed) in any other course at this University may repeat the course for credit at his option.

An undergraduate or professional student who has received a grade of D (Lowest quality of passing work) in a course at this University may repeat the course for credit *only* upon the recommendation of the executive committee and with the approval of the dean of his college. A graduate student as defined in Faculty Rule 41.03, may, when approval is given by an adviser, repeat for credit any course in which he has received a grade of D (Lowest quality of passing work).

An undergraduate or professional student, as defined in Rule 41.03, who has received a grade of A (Highest quality of passing work), B (Second quality of passing work), or C (Third quality of passing work) in a course taken at this University or elsewhere, may repeat the course only as an auditor, upon receipt of permission of the chairman of the department or director of the school and the dean of his college. A graduate student, as defined in Rule 41.03, may, after a period of five years, and when approval is given by the Graduate Committee of his Department and Dean of the Graduate School, repeat for credit, a course in which he has received a mark of A, B, or C.

A student who has audited a course may subsequently repeat the course for credit with the permission of the executive committee of his college.

The credit hours for a repeated course shall in no case be counted more than once in meeting graduation requirements.

#### **REMOVAL OF FAILURE IN REQUIRED COURSE**

A student is responsible for repeating in class, at his first opportunity, a required course in which he has failed, unless the executive committee of the college authorizes a substitute course.



## ALTERATION OF MARKS

At the close of each quarter, the Registrar's office notifies each student by mail of the marks earned during the quarter. These marks become a part of the official record of the student and are not subject to change except upon official authorization of the chairman of the department or director of the school and the dean of the college. Such changes shall be made only when a clerical error has been discovered.

## THE POINT-HOUR RATIO

A student's academic standing for a quarter is expressed by his point-hour ratio. This ratio is determined by dividing the total number of points earned by the total number of credit hours scheduled or undertaken. Courses graded H, I, P, R, S, T or X are not included in the computations. The following is an example: A = 4.0, B = 3.0, C = 2.0, D = 1.0, E (Failed) = 0.

	HOURS	GRADE	POINTS
Course No. 1	5	A	20
Course No. 2	3	C	6
Course No. 3	(3)	I	
Course No. 4	3	E	0
Course No. 5	3	B	9
	14		35

Point-hour ratio: 2.50

When the final grade on Course No. 3 is recorded, the points and hours will be included in the computation of the student's point-hour ratio. When a student has a record for two or more quarters, he will have a cumulative point-hour ratio determined by dividing the total points earned by the total hours undertaken.

## UNIVERSITY CLASS RANKING SYSTEM

The class standing of students in all the undergraduate colleges is determined on the basis of total credit hours completed and recorded as follows:

RANK	EARNED CREDIT HOURS	SCHEDULE CARD CODE
Freshman	0- 48	1
Sophomore	49- 97	2
Junior	98-146	3
Senior	147-195	4
Fifth Year	196 and more	5

Students enrolled in the professional divisions or colleges of Allied Medical Services, Dentistry, Education-Professional, Engineering-Professional, Law, Medicine, Nursing,

Optometry, Pharmacy, and Veterinary Medicine begin their ranking over again, as follows:

RANK	SCHEDULE CARD CODE
First Year	1
Second Year	2
Third Year	3
Fourth Year	4

Should there be any doubt in a student's mind concerning the correctness of his ranking in the professional divisions and colleges, he should consult with the division or college concerned.

Students enrolled in the Graduate School receive the rank of either M (Master's) or P (Ph.D.).

## MINIMUM SCHOLASTIC REQUIREMENTS

These requirements shall apply only to undergraduate students. The academic standards controlling warning, probation, and dismissal of professional and graduate students shall be established by rule by the faculties of the colleges in which the professional students are registered, or of the Graduate School if the student is a graduate student.

The promulgation of these rules, and their amendment or repeal, shall be subject to the approval of the Board of Trustees.

A transfer student from another university who is admitted to advanced standing in this University shall be treated as though his entire residence had been at this University, but his point-hour ratio will be computed only upon work done at this University.

Admission to quarters beyond the first quarter shall be conditioned as follows:

1. To the second or third quarter, attainment of a minimum point-hour ratio of 0.75 for the immediately preceding quarter;
2. To the fourth, fifth, or sixth quarter, attainment of a minimum cumulative point-hour ratio of 1.70 at the end of the immediately preceding quarter, or of a point-hour ratio of 2.00 or better, on a minimum of 12 quarter hours, for the quarter immediately preceding;
3. To the seventh quarter, attainment of a cumulative point-hour ratio of 1.90 at the end of the sixth quarter;

4. To the eighth or any subsequent quarter, a minimum cumulative point-hour ratio of 2.00 at the end of one of the student's two immediately preceding quarters.

### WARNING AND PROBATION

Any student subject to the provisions of the minimum scholastic requirements rule who fails to achieve a point-hour ratio of 2.00 on the work of any quarter shall be warned and his parents or guardian notified by the University Registrar on behalf of the dean of his college.

Any student subject to the provisions of the minimum scholastic requirements rule whose cumulative point-hour ratio is below 1.70 at the end of the third, fourth, or fifth quarter, or below 2.00 at the end of the sixth or any subsequent quarter shall be placed on probation unless dismissed pursuant with the provisions of the rule. Such probation shall continue until the required cumulative point-hour ratio has been achieved or the student has been dismissed pursuant to the rules regarding dismissal. Other conditions of probation may be established by the Administrative Council. The student and his parents or guardian shall be notified of probationary status by the College in which he is registered. Such notifications shall include a clear statement of what shall be required of the student academically if he is to avoid dismissal.

### DISMISSAL\*

1. Failure to meet the minimum scholastic requirements shall result in dismissal from the University as of the

end of the quarter in which such failure occurs.

2. If at any time the preparation, progress, or success of a student in his assigned work is determined to be unsatisfactory, the executive committee of the college or school in which he is registered shall be empowered to dismiss him from the University.
3. Notice of dismissal from the University shall be sent by the dean of the college or school in which the dismissed student is registered to the student and to the student's parents or guardian.
4. A dismissal or failure to meet minimum scholastic requirements may be waived for educationally sound reasons through special action of the executive committee of the college or school in which the student is registered.
5. Any student who may be reinstated by the executive committee of his college or school following dismissal shall be subject to such special requirements as may be determined appropriate by the executive committee. If the performance records of any reinstated student do not meet the conditions specified at the time of reinstatement, then the executive committee shall consider all the facts in the student's case and determine whether dismissal by special action or a waiver for another quarter is indicated.

\* Students not permitted to continue in Education-Professional or Engineering-Professional curricula but who have a 2.0 accumulated point hour ratio or better may continue in the University in another college or school.



# Graduation Requirements

## REQUIREMENTS FOR AN UNDERGRADUATE DEGREE (Rule 49.03)

To obtain an undergraduate degree from this University an undergraduate student must:

- a. Have completed a minimum of three quarters in full-time residence on the Columbus Campus of this University. To be "in full-time residence" in any quarter a student must be enrolled in courses carrying 12 or more quarter hours credit. The executive committee of the college recommending the degree may, upon the request of the student, waive this requirement.
- b. Have been enrolled in the college recommending that degree during the last two quarters of work necessary to complete the degree requirements. The executive committee of the college recommending the degree may waive this requirement to the extent of not more than one quarter's enrollment if the student has six quarters in full-time residence (as defined in paragraph a, above) at this University, including a minimum of 45 quarter credit hours earned through regular course enrollment at this University during the junior and senior years.
- c. Have earned through regular course enrollment a minimum of 45 quarter hours credit from this University.
- d. Have satisfactorily completed the number of credit hours required for the curriculum he is pursuing. The minimum number of credit hours required in each curriculum shall include the credit hours required under Rules 31.0701 and 31.0703; however, excuses granted under Rule 31.0705 shall not reduce the stated minimum number of credit hours required in the curriculum for a degree or a certificate. Credit hours are considered as "satisfactorily completed" only if the student has received, at this University, the Mark A, B, C, D, EM, K, or S in those hours (see Rule 35.07).
- e. Have earned credit points (see Rule 37.03) totaling at least twice the num-

ber of credit hours undertaken at this University.

- f. Have satisfactorily met all additional college and curricular requirements for the degree involved.
- g. Have filed an application for the degree in accordance with rules prescribed by the College.

## REQUIREMENTS FOR A GRADUATE OR PROFESSIONAL DEGREE (Rules 49.05 and 49.07)

To obtain a graduate or professional degree from this University, the graduate or professional student must have met the minimum requirements established by the Graduate Council or the college recommending the degree and approved by the Board of Trustees.

## DEGREES AND CERTIFICATES

Degrees and certificates are awarded by the Board of Trustees upon the recommendation of the College faculties, or the Graduate Council, and the Faculty Council, as transmitted to the Board by the President.

## REQUIRED COURSES

Each college has certain requirements which must be met by every student seeking to earn a degree in that college. The specific course requirements will be found, for each of the curricula administered by each college, in the specific college books of this *Bulletin* series. In addition to these, the University has established certain requirements outlined below.

### REQUIRED COURSES FOR MEN AND WOMEN STUDENTS

All students entering any of the undergraduate colleges including Allied Medical Services, Nursing, and Dental Hygiene are required to schedule:

1. One hour of physical education each quarter offered until a total of three quarters of credit has been earned.
2. One hour of health education during *one of the first three quarters offered*, and thereafter if necessary, each quarter until 1 credit hour has been earned.

Transfer to other colleges of this University shall not constitute a waiver of unfulfilled requirements of this rule.



## UNIVERSITY REQUIRED COURSES IN BASIC EDUCATION AND R.O.T.C.

Every curriculum in the following colleges—Agriculture and Home Economics, Arts and Sciences, Biological Sciences, Commerce and Administration, Education, and Engineering—includes a body of courses from which 45 credit hours must be selected to assure that each student is given the opportunity to become acquainted with the three basic areas of academic study—the Humanities, the Social Sciences, and the Natural Sciences—by selecting 15 credit hours in each of these three areas. These courses are specifically stated in the individual college books under the heading "Academic Requirements." The objectives of this part of the curriculum, as set forth by the University Faculty, are as follows:

### HUMANITIES (15 credit hours)

The objectives are to introduce the student to his possibilities for continuing growth as a thoughtful and reasoning person, sensitive to the aspirations and attainments of others; to acquaint him to at least some degree with the treasures of human thought and expressions at his command; and to develop in him a continuing desire to have his full share of the legacy of all creative efforts.

### SOCIAL SCIENCES (15 credit hours)

The objectives are to make sure that the student has at least a basic understanding of the fundamental ideas upon which our society has been built, the social institutions through which these ideas have been given effective meaning, and the never-ending process of development through free choice limited only by concern for the rights and well-being of others. Emphasis will be put upon the values of a free society and the responsibility of the individual for participating actively in the issues and decisions of the day.

### NATURAL SCIENCES (15 credit hours)

The objectives are to acquaint the student with the kinds of problems which lend themselves to possible solutions through the use of science, to introduce him to differing scientific techniques through significant illustrative experience, to give him a sense of perspective in the development of science, and to develop in him an understanding of the basic community of all scientific disciplines.

In addition to the above requirements, all students enrolled in these colleges will

elect one of the following requirements:

*Either*

1. Twelve hours of military or air science, or 15 hours of naval science plus 5 hours of basic general psychology, or if in the advanced ROTC program, 18 hours of advanced air, military (Army), or naval science.

*Or*

2. One of the academic options as stipulated in this *Bulletin* series for the particular college or school in which the student is enrolled.

Students transferring from other colleges or universities can meet part or all of the above requirements with approximately equivalent courses. Credits for each transfer student shall be reviewed by the Director of Admissions and the appropriate college and credit in all courses which meet the spirit of these basic education requirements shall be accepted.

## EXCUSES FROM REQUIRED COURSES

The college in which a student is enrolled may excuse a student from course requirements imposed by that college.

The requirements of physical education and health education are University requirements. The President and the departments of instruction directly concerned may grant by Faculty Regulation excuses from these courses.

## GRADUATE CREDIT FOR UNDERGRADUATES

An undergraduate may work towards graduate credit provided:

1. Three years of course work have been completed.
2. The credit for the course is not necessary to complete baccalaureate degree requirements.
3. Point-hour ratio is 2.7 or above.
4. Permission is secured from:
  - a. The course instructor.
  - b. The Secretary of the student's college.
  - c. The Office of the Graduate School before he registers for graduate courses.

A grade of B or better must be achieved, and the credit for these courses can not be used until the student has been admitted to the Graduate School and until the department in which he wishes to specialize accepts the work. Fifteen quarter hours of such work is the maximum which may be counted toward an advanced degree.







# Organization of Instructional Units

For conveniences of administration, the instructional units—colleges, schools, academic faculties, departments, and divisions—of the University are grouped as follows:

## Undergraduate Colleges

### COLLEGE OF ADMINISTRATIVE SCIENCE

#### DEPARTMENTS

Accounting  
Business Organization

#### SCHOOL

Social Work

### COLLEGE OF AGRICULTURE AND HOME ECONOMICS

#### DEPARTMENTS

Agricultural Economics and Rural  
Sociology  
Agricultural Education  
Agricultural Engineering  
Agronomy  
Animal Science  
Dairy Science  
Dairy Technology  
Horticulture and Forestry  
Plant Pathology  
Poultry Science

#### SCHOOL

Home Economics  
Natural Resources

### COLLEGE OF THE ARTS

#### SCHOOLS

Art  
Music

#### Majors

Dance  
Theatre

## COLLEGE OF BIOLOGICAL SCIENCES

### ACADEMIC FACULTIES

Biochemistry and Molecular Biology  
Biophysics  
Genetics  
Microbial and Cellular Biology  
Organismic and Developmental Biology  
Population and Environmental Biology  
Entomology

## COLLEGE OF EDUCATION

## COLLEGE OF ENGINEERING

### DEPARTMENTS

Aeronautical-Astronautical Engineering  
Aviation  
Ceramic Engineering  
Chemical Engineering  
Civil Engineering  
Electrical Engineering  
Engineering Graphics  
Engineering Mechanics  
Industrial Engineering  
Mechanical Engineering  
Metallurgical Engineering  
Mineralogy  
Photography  
Welding Engineering

### SCHOOL

Architecture

### DIVISION

Computer and Information Science

## COLLEGE OF HUMANITIES

### DEPARTMENTS

Classics  
English  
German  
History  
Linguistics  
Philosophy  
Romance Languages and Literature  
Slavic Languages and Literature

### DIVISIONS

Comparative Literature and Languages  
Asian



## COLLEGE OF MATHEMATICS AND PHYSICAL SCIENCES

### DEPARTMENTS

Astronomy  
Chemistry  
Geodetic Science  
Geology  
Mathematics  
Physics

## COLLEGE OF SOCIAL AND BEHAVIORAL SCIENCES

### DEPARTMENTS

Anthropology  
Economics  
Geography  
Political Science  
Psychology  
Sociology  
Speech

### SCHOOL

Journalism

## UNIVERSITY COLLEGE

### OTHER DEPARTMENTS

Air Science  
Military Science  
Naval Science  
Physical Education

## Professional Colleges

### COLLEGE OF DENTISTRY

#### DIVISIONS

Dentistry  
Dental Hygiene

## COLLEGE OF LAW

### COLLEGE OF MEDICINE

#### DEPARTMENTS

Anatomy  
Medicine  
Medical Microbiology  
Obstetrics and Gynecology  
Ophthalmology  
Otolaryngology  
Pathology  
Pediatrics  
Pharmacology  
Physical Medicine  
Physiological Chemistry  
Physiology  
Preventive Medicine  
Psychiatry  
Radiology  
Surgery

#### SCHOOLS

Allied Medical Professions  
Nursing

## COLLEGE OF OPTOMETRY

## COLLEGE OF PHARMACY

## COLLEGE OF VETERINARY MEDICINE

#### DEPARTMENTS

Veterinary Anatomy  
Veterinary Medicine  
Veterinary Parasitology  
Veterinary Pathology  
Veterinary Physiology and Pharmacology  
Veterinary Preventive Medicine  
Veterinary Surgery and Radiology

## Graduate School

# Registration Procedures

## SCHEDULE CARDS FOR REGISTRATION

*Students in residence:* Schedule cards are distributed to undergraduate and professional students by the student's college office. Graduate students' schedules are distributed by the Registrar's office.

*All new students:* Schedule cards are distributed by the Registrar. Students formally schedule their programs of study for one quarter at a time; they should, with their advisors, informally plan several years ahead.

## PRESENTATION OF STUDY PROGRAM

*Students in residence:* Spring and Summer students present schedule requests for Autumn on or before August 31.

For all other quarter deadline dates, consult the University Calendar.

*Penalties:* \$5 will be assessed for the first day and \$1 for each succeeding day past the deadline date to a maximum of \$10.

## CHANGES IN APPROVED SCHEDULES

*To add courses:* Upon receipt of approved schedules through the first five full class days after the start of the quarter—permission of college office.

After the fifth full class day after the start of the quarter—permission of instructor, department chairman, and dean of the student's college.

*To drop courses:* Withdrawal from a course after the receipt of approved schedules requires the permission of the student's college office and is permitted only to adjust unavoidable errors in registration, failure in prerequisite courses, official changes in publicized quarterly offerings, or other conditions beyond the control of the student.

For additional information refer to: *Withdrawal from Course Procedures*, p. 12.

*Time changes:* Permission of department only.

## SCHEDULING PROGRAMS

Students should consult with counselors or advisers in their college offices prior to the release of schedule request cards to plan their selections of classes. The *Academic Planning Guide* found in the last section of this book is designed to assist in these consultations.

*Caution:* Students expecting to fulfill requirements by taking courses in the evening or during the Summer Quarter are cautioned that the offerings during those periods are limited. In preparing schedules, such students should consult the current quarterly *Master Schedule*.

## INTER-COLLEGE TRANSFERS

Students in good standing in one college of the University who wish to transfer to another college within the University should consult a counselor in the new college before completing the transfer and before submitting schedule cards for approval. The official transfer from one college to another is made by application to the Admissions Office.

With the exception of Education Professional and Engineering Professional students with accumulative point-hour ratios of 2.0 or better, students who have been denied further registration in one college of the University may not be admitted to another college on this campus except by petition approved by the Executive Committee of the colleges they wish to enter.

A transfer to an undergraduate college of the University must be completed not later than ten days before the first day of classes of the quarter the transfer becomes effective.

## RESCHEDULED COURSES

Each department is authorized to administer placement examinations to students enrolling for the first time in courses offered by that department. Following such placement examinations, a department may instruct the Secretary of the College in which the student is registered to change such student's enrollment either to a more elementary or to a more advanced course.

If, within the first four weeks of a quarter, a student's previous preparation is demonstrably inadequate for a course in which he originally enrolled, the department concerned is empowered to instruct



the college in which that student is registered to remove the course from the student's schedule and replace it with a more suitable one.

### CREDIT FOR RESCHEDULED COURSES

Credit for all rescheduled courses resulting from action under the rescheduled course rule shall count toward the fulfillment of graduation requirements unless: (a) the student has previously earned University or College Credit (or in a foreign language, either university, college or secondary school credit) in a course having substantially the same subject matter content, or (b) the substituted course is one which the department, with the approval of the Council of Instruction, has established for students with inadequate preparation for college-level courses of that department.

### PAYMENT OF FEES

Fees are due and are to be paid as soon as fee cards have been received from the Registrar. Early payments are encouraged for the convenience of both the student and the University.

The University reserves the right to refuse registration if fees are not paid by the date on which they are due as specified in the *University Calendar*.

For additional information, see *Fees and Expenses* below.

## Withdrawal Procedures and Policies

### WITHDRAWAL FROM COURSE

Withdrawal from a course after the start of the quarter is permitted only to adjust for unavoidable errors in registration, failure in prerequisite courses, official changes in publicized quarterly offerings, or other conditions beyond the control of the student. The student is expected to plan his program carefully before scheduling and then register for the specific courses he intends to pursue for the entire quarter.

Deviations from a normally required program should be discussed with a counselor preferably before scheduling and definitely no later than the beginning of the quarter.

A request for withdrawal from a course because of emergency circumstances beyond the student's control, such as severe illness or accident or comparable situation, must be discussed with a counselor in the student's college office.

If the request is approved, a change ticket issued at the college office must be submitted within 24 hours at the Registrar's Office for a schedule change.

### COMPULSORY COURSE WITHDRAWAL

An enrollee of any undergraduate college who fails to attend a scheduled course before Saturday noon of the first week of classes, may, at the option of the department, be disenrolled immediately from said course. In the event a department chooses to take such action, it will be the responsibility of the department chairman to notify the student's college office. A change ticket removing the course from the student's schedule will be prepared in the college office, and a copy shall be forwarded to the Office of the Registrar (Faculty Rule 41.07).

### WITHDRAWAL FROM THE UNIVERSITY

A student who desires to withdraw from the University must apply to the dean of his college for permission to withdraw. If the student severs his connection with the University at any time during the quarter without communicating with the dean of his college, he will be marked as having failed in all of his courses for the quarter.

No student may withdraw from the University within two weeks of the beginning of examinations unless the reports of his instructors show that his record to date is satisfactory.

When a student withdraws from the University during a quarter his parent or guardian shall be notified of the fact by the secretary of the college (Rule 47.01).

### RULES GOVERNING NONRESIDENT STATUS

The following rules governing residency status were approved by the Board of Trustees and conform with the Ohio Board of Regents Rule No. 2.



### 1. General Policy as to Non-Resident Fees

Every student who is not a resident of the State of Ohio, as defined below, is required to pay non-resident tuition fees in addition to other University fees.

- a. The status of a student as a resident or non-resident of the State of Ohio for fee purposes will be determined as of his original enrollment. In general, that status will remain the same throughout his continued attendance at the University, although such status may be reviewed upon petition. In cases where there has been a break in the student's attendance at the University, the beginning of the last enrollment may be considered by the Registrar as the student's "original enrollment" for the purpose of residence determination.
- b. A person shall be eligible to register as a resident for fee purposes only if he, in the case of an adult student, or the parents or guardian, in the case of a minor student, has established *bona fide* residence (domicile) in the State of Ohio for twelve consecutive months preceding the first day of classes of the quarter for which registration is made.
- c. Further information or clarifications may be obtained by contacting the Office of the Registrar, Room 13, Administration Building, 190 North Oval Drive, Columbus, Ohio 43210.

### 2. Registration

The burden of registering under the proper residence is placed upon the student. If there is any question as to residence, the matter should be brought to the attention of the Registrar and passed upon prior to original enrollment.

### 3. Definitions

This policy is interpreted as follows:

- a. An adult student is a person 21 years of age or older.
- b. A person is considered to be a minor until he has reached his 21st birthday. Married minors, however, and veterans are entitled to establish and maintain their own residency pursuant to Paragraph 1-b.
- c. The residency of a married woman is determined by the rules which would apply to her husband if he would seek enrollment; except that a woman who would have been classified as an Ohio resident for fee purposes immediately prior to her marriage to a non-resident may continue to be classified an Ohio resident providing she continues to live in Ohio.
- d. A woman who is legally separated from her husband may establish her own residency pursuant to Paragraph 1-b.
- e. Federal Government service personnel who entered the service from Ohio and their dependents shall be considered residents for fee purposes if they provide proof of continued Ohio domicile such as evidence that (1) they have not acquired a domicile in another state and (2) they have maintained a continuous voting record in Ohio.
- f. Personnel in the military service who enter the service from another state and their dependent children shall be classified as Ohio residents during the period of their active duty assignment in Ohio. If a person in the service changes his or her residence legally and officially in Ohio, he and his dependents shall be classified as residents without reservation.
- g. Aliens admitted to this country on immigrant visas may establish Ohio residence in the same manner as any other non-resident. All aliens admitted to this country on student visas will be classified as foreign students, and as such, non-residents.
- h. A student registering as a resident for fee purposes, from an established domicile in the state, shall continue to be classified as a resident for as long as he is continuously enrolled as a student at The Ohio State University.
- i. An emancipated minor who is completely self-supporting may be considered a resident for fee purposes. He must present satisfactory proof that his parents, if living, neither contribute to his welfare nor claim him as a dependent for Federal Income Tax purposes. The fact that a minor files his own federal or city income tax return is not sufficient evidence alone to substantiate emancipation.
- j. Teachers in Ohio schools who enroll at The Ohio State University are



classified as resident students when they have signed a contract for the second year.

k. The residency of any student may be re-evaluated at each term of re-enrollment, provided he has met all requirements for Ohio residency as stated in these rules. Changes of classification from non-resident to resident will not be made retroactive prior to the quarter or term in which application for resident classification is made.

l. The residence of any person, other than the parent or legal guardian, who may furnish funds for payment of University fees, shall in no way affect the residence of the student.

m. Proof of ownership of property in Ohio, payment of local and state taxes, Ohio automobile registration or driv-

er's license, or the fact that a person is a legal voter in Ohio, do not, in themselves, constitute valid evidence of resident status for fee purposes. Residency for fee payment purposes is dependent upon the domicile of the student concerned.

n. An out-of-state student enrolled for a full program is considered to be in the State for the purpose of attending school, and is presumed not to be here as a permanent resident. Continued presence in Ohio during vacation periods does not of itself overcome the presumption.

o. Any non-resident student who reaches the age of 21 years, or is married while a student at any university or college in the State of Ohio does not by virtue of such act attain residence for fee payment purpose.

Application Fee	10
Acceptance Fee	10
Instructional and General Fees	45
Student Services Fee	75
Books and Instruments	75
Special Laboratory Fees and others	30
Room and Board in Residence Halls	888
Total	1153
Nonresident add tuition	400
Exchange Rate	400
Room and Board in Residence Halls	888
Books and Instruments	75
Student Services Fee	75
Instructional and General Fees	45
Acceptance Fee	10
Application Fee	10

By far the largest group of counselors at Ohio State are the faculty advisers who devote a large part of their time assisting students relative to their classroom work and programs of study. The role of the faculty adviser is to help each student obtain the maximum benefit from his program of study and to make each student's educational experience as rewarding as possible.

The Counseling Center provides counsel- ing services to assist students in dealing more effectively with questions about voca- tional and educational planning, personal and social adjustment, including self-con- fidence and marital counseling. Faculty and experienced professional counselors are available to discuss any questions of con- cern to the student. If the Counseling Cen- ter is unable to provide the full assistance that a student needs, a counselor will sug- gest a place where further assistance is available.

The Counseling Center maintains a li- brary of occupational information which students are welcome to use. There is also a laboratory to assist students in the im- provement of reading and study skills. These services and facilities are available to all students of the University.

## Assistance Information For Students

### COUNSELING

The University provides a wide variety of counseling services for its students. Trained and experienced professional counselors in each of the undergraduate colleges assist students in the choice of courses, scheduling of classes, and the interpretation of academic requirements. This corps of counselors renders invaluable service by helping students assess their needs, abilities, limitations, and goals. In addition to assisting students with course selection and registration during the orientation program, undergraduate college counselors are available throughout the year to discuss with students their academic and personal problems, program requirements, vocational possibilities, and to insure that students are referred to appropriate officials who can assist with special problems.

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The Counseling Center provides counseling services to assist students in dealing more effectively with questions about vocational and educational planning, personal and social adjustment, including pre-marital and marital counseling. Trained and experienced professional counselors are available to discuss any questions of concern to the student. If the Counseling Center is unable to provide the full assistance that a student needs, a counselor will suggest a place where further assistance is available.

The Counseling Center maintains a library of occupational information which students are welcome to use. There is also a laboratory to assist students in the improvement of reading and study skills. These services and facilities are available to all students of the University.

## Fees and Expenses\*

All fees are due and payable as a part of the student's registration before the day designated in the *University Calendar*. No person should come to the University for registration without money sufficient to cover all of his fees and deposits.

No student will have any privileges in the classes or laboratories until all fees and deposits are paid. Extension of the deadline for payment of fees will be given only in extreme emergency and then only upon the approval of the Executive Dean for Admissions and Registrations.

### COSTS

The cost for a year at The Ohio State University depends, in part, on the student. For Ohio residents who live on campus the general amount ranges from \$1550 to \$1700 minimum for the academic year of three quarters.

#### FEES FOR ACADEMIC YEAR (Three Quarters) UNDERGRADUATE COLLEGES

Application Fee .....	\$ 10
(Nonrefundable and not applicable toward any other fee)	
Acceptance Fee <sup>1</sup> .....	25
(Nonrefundable and not applicable toward any other fee)	
Instructional and General Fee .....	435
Student Services Fee .....	75
Books and Instruments (average) ..	75
Special Laboratory Fees and other deposits <sup>2</sup> (Variable, returnable in part)	50
Room and Board in Residence Halls (average) .....	888
Total .....	\$1558
Nonresidents add tuition surcharge .....	
	\$ 600

<sup>1</sup> An Acceptance Fee Card is mailed to each newly-admitted undergraduate student. The Acceptance Fee should not be paid until this fee card is received.

<sup>2</sup> Basic ROTC uniforms are furnished by the federal government. A deposit of \$40 is required except for Naval ROTC students. This deposit will be refunded at the time the uniform is returned to the appropriate ROTC Department.

All fees are subject to change.



	Instructional and General	Student Services	Total Resident	Out-of-State Tuition	Non- Resident Total
<b>FEES (non-returnable)</b>					
Application Fee	\$ 10				
Acceptance Fee	25				
<b>FULL-TIME STUDENTS</b>					
Agriculture and Home Economics	\$145	\$25	\$170	\$200	\$370
Arts and Sciences (Colleges of)					
The Arts	145	25	170	200	370
Biological Sciences	145	25	170	200	370
Humanities	145	25	170	200	370
Mathematics & Physical Sciences	145	25	170	200	370
Social & Behavioral Sciences	145	25	170	200	370
Administrative Science	145	25	170	200	370
Education	145	25	170	200	370
Engineering	145	25	170	200	370
Graduate School	145	25	170	200	370
Dentistry	265	25	290	200	490
Dental Hygiene and Dental Laboratory Technology	193	25	218	200	418
Law	173**	25	198	200	398
Medicine*	285	25	310	200	510
School of Allied Medical Professions	145	25	170	200	370
School of Nursing	145	25	170	200	370
Optometry	183	25	208	200	408
Pharmacy	151	25	176	200	376
Veterinary Medicine	185	25	210	200	410
University Branches and Academic Center	145	25	170	200	370

**PART-TIME STUDENTS****Non-professional Programs**

For courses totaling 6 or fewer hours

73 12 85 100 185

Students enrolling for more than 6 hours which extend over more than a single term shall be assessed full fee

145 25 170 200 370

The minimum fee for a student registered in Summer Quarter

73 12 85 100 185

**PROFESSIONAL PROGRAMS**

For courses totaling six or fewer credit hours or for one term of a Summer Quarter the amount assessed shall be one-half of the full fees to the next even dollar amount. (Consult specific College Announcement: Fees and Expenses.)

**SPECIAL UNIVERSITY FEES****Laboratory Fee**

Instructors shall not permit a student to engage in laboratory work unless the student has shown a receipt from the Bursar for the fees required in the course

Varies

**Military Uniform Deposit**

Deposit for military uniform for freshmen (Army & Air Force only)

40

	Instructional and General	Student Services	Resident Total	Out-of-State Tuition	Non- Resident Total
<b>Other Fees</b>					
In the case of students registered and receiving college credit for Short Courses, Workshops, Geology Field Trips, Conservation Laboratory, and those of a similar nature, the fee assessed will be in accordance with the fees for the undergraduate colleges.					Varies
<b>Fee Assessed Certain Professional Students</b>					
In the case of students in the professional colleges registered and receiving college credit for undergraduate non-professional courses, or other special assignment, the fee assessed for Summer Quarter will be in accordance with the fees for the undergraduate colleges.					Varies
<b>Health Insurance</b>					
All international students are required to enroll each quarter for Student Health Insurance					\$ 8
<b>ABSTRACT FEES</b>					
Abstracts for Masters' theses					10
Abstracts for Ph.D. dissertations					35

\*\* Includes Law Library Fee and *Law Review*, but does not include the Student Bar Association fee of \$15 which is assessed the first quarter of a student's enrollment.

\* Assessed by the year: see College of Medicine Catalog for method of payment.

## STUDENT PERSONAL EXPENSE FUNDS

The incoming student will save himself much time and trouble by taking a few simple precautions in regard to his personal expense money. The student should bring enough cash to cover expenses for several days. If he does not wish to carry cash, he should use travelers checks, as they are readily cashed. If he does bring a check, it should be in the form of a bank draft or cashier's check. Any checks that are for the payment of fees must be drawn up for the exact amount of the fees.

The following facts concerning the cashing of checks should be borne in mind by parents and prospective students:

1. The Ohio State University does not cash checks.
2. Checks for fees will be accepted by the University, but only when the check is drawn for the exact amount of the fees.
3. Banks do not cash checks for strangers unless the check is endorsed by a customer of the bank or some person of known responsibility. This rule applies to cashier's checks, bank drafts, and certified checks.

The student who intends to use a checking account will find that an account in Columbus will be of more value than an account at home or in some other city. An account with a Columbus bank will provide a safe place for depositing funds, will help create a local credit standing, will furnish a means of depositing and cashing checks, and will help the student to understand banking practices.

## SPECIAL FEES — PENALTIES

### FEES FOR LATE FILING OF SCHEDULE CARDS

A student who fails to file his schedule card within the required time must pay a penalty of \$5 for the first day and \$1 for each succeeding day of delay, the maximum fine being \$10. (See also p. 12, Payment of Fees.)

### FEE FOR CHANGES IN APPROVED SCHEDULE CARDS

Changes in subjects on approved schedule cards will be made only upon the approval of the student's College office and the payment of \$1 for each change involved unless such payment is waived by the College office approving the change.



**PENALTY FOR PAYMENT OF FEES WITH BAD CHECK**

Any student presenting a check for fees which is returned because of insufficient funds will be assessed immediately a penalty of \$10 and his registration cancelled. Additionally, before registering again, the regular penalty for late payment, indicated in the *Fees and Expenses* section, will be assessed.

The abstracts of Masters' theses and abstracts of Ph.D. dissertations are micro-filmed and published in the form of a journal at the end of each quarter. A special fee for editing, printing, and binding or microfilming these abstracts is required for each person receiving such a degree from this University. This fee must be paid not later than one week before the Commencement date on which the candidate expects to receive his degree.

**RETURN OF FEES ON WITHDRAWAL**

Rule 43.09 of Rules for the University Faculty, a rule initiated by the Board of Trustees, states:

*Section 1.* Fees (except for the Application and Acceptance fees) are returnable in part if a student withdraws from the University for any cause other than at the request of the University and if such withdrawal is made within the period of time specified in Section 2 or Section 3 of this Rule. The Application fee and the Acceptance fee are not returnable irrespective of the reason for withdrawal.

Students dismissed from the University or withdrawing at the request of the University are not entitled to any refund of fees.

*Section 2.* Quarter fees will be refunded according to the following schedule:\*

- a. From the date on which the fees were paid through the 6th day on which classes are scheduled . . . full fees less \$10.00.
- b. After the 6th day on which classes are scheduled through the 12th day on which classes are scheduled . . . 75 percent of fees are paid.
- c. After the 12th day on which classes are scheduled through the 24th day on which classes are scheduled . . . 50 percent of fees are paid.
- d. After the 24th day on which classes are scheduled . . . no refund of fees paid.

*Section 3.* Term fees will be refunded according to the following schedule:\*

- a. From the date on which fees are paid through the 6th day on which classes are scheduled . . . full fees less \$10.00.
- b. After the 6th day on which classes are scheduled through the 9th day on which classes are scheduled . . . 75 percent of fees paid.
- c. After the 9th day on which classes are scheduled through the 12th day on which classes are scheduled . . . 50 percent of the fees paid.
- d. After the 12th day on which classes are scheduled . . . no refund of fees paid.

\* Schedule includes Saturdays.

*Section 4.* In order to be eligible for the listed refund, the student must present to the Bursar—within the time listed above—written permission to withdraw, signed by the Dean of his College and must surrender his fee card to the Bursar.

*Section 5.* If exceptional conditions prevent the presentation of authorization to withdraw at the Bursar's Office at the proper time, and if the student has not been able to attend classes during this time, the case should be referred for decision to the Executive Dean for Admissions and Registrations

*Section 6.* No fees will be returned in case of withdrawal of students until 30 days have elapsed from the date of withdrawal.

*Section 7.* If fees are paid under mistake of law or fact, they are returnable in full.

*Section 8.* Fees are not returnable except as provided in this Rule 43.09.

**LABORATORY FEES**

These fees are considered as an integral expense of the course and will be automatically refunded according to and as part of the Return of Fees on Withdrawal schedule as discussed above.

**TRANSCRIPT FEE**

Every student is entitled to one copy of his University record free of charge. There will be a charge of one dollar for each additional copy. The fee should accompany the transcript request.

**HEALTH SERVICE**

The University Health Service is maintained on the campus to serve the health needs of the student body. A well-qualified



staff of physicians, including representatives from most specialties, is available to care for those conditions which may be adequately treated in an out-patient clinic and also to maintain liaison with family physicians. Emergency cases and seriously ill students are referred to the University Hospitals or to a hospital of the individual's choice. Primary financial responsibility for hospital service rests with the student. Therefore, all students are urged to consider the advantage of The Ohio State University student insurance program.

### STUDENT FINANCIAL AIDS

Administration of Student Employment, Work-Study Program, Loans, Scholarships and Grants is centered in the Student Financial Aids Office, Student Services Building, 154 West 12th Avenue. The office is open from 8 a.m. to 5 p.m. weekdays and 8 a.m. to 12 noon on Saturdays. The following services are available to assist students in need of financial aid:

### STUDENT EMPLOYMENT

The Student Employment Office serves only registered students and their spouses. The office solicits and receives information on job opportunities on and off campus. Students submit applications and are interviewed regarding their qualifications and availability. Qualified applicants are referred to appropriate employers for consideration. Students' applications list special skills, previous experience and employment, fields of study, grades, and class schedules. The record of employment while at the University is kept together with performance reports and is considered in making future referrals. It is often studied by prospective career employers after graduation.

Direct referrals are made only for jobs on campus or in the Columbus area. No referrals are made for commission sales or telephone solicitation jobs, although screened information on commission sales opportunities is available to interested students. Likewise, information on summer jobs outside Columbus and at camps, parks, and resorts is available. Interviews with out-of-town employers for summer positions are arranged during the Winter and Spring Quarters.

### WORK-STUDY PROGRAM

The College Work-Study Program under the Economic Opportunity Act of 1964 provides financial aid through employment to college students who, without such assistance, would not be able to attain a higher education.

To qualify, students must:

Come from low-income or moderate-income families unable to contribute significantly to their education.

Need this employment income in order to attend college.

Be able to work up to fifteen hours per week and maintain satisfactory grades.

Students may not work more than 15 hours per week when classes are in session; when school is not in session or during vacation periods, students may work a 40-hour week. Students working full-time all summer can earn between \$700 and \$1,000. At 15 hours per week during the academic year, they can expect to earn \$75 to \$100 per month.

### LOANS

The Student Financial Aids Office administers all student loans at The Ohio State University. All loans are for current educational expenses only (room, board, books, and tuition) and are granted to students whose parents, guardians, or spouses are unable to provide sufficient funds to enable them to finance their education. Students who are considered full-time are eligible to apply, but no funds can be granted to entering freshmen. First-quarter students, however, may apply for aid for their second quarter if their admission and placement tests plus previous academic records predict upper two-thirds class standing in the University. All other students must have a minimum 2.00 cumulative point-hour in order to apply. As loan funds are limited, first consideration will go to those students having the highest combination of ability and need. A brief description of available loan funds is given below.

### UNIVERSITY LOAN FUND

University and Foundation Loans are applied for quarterly and have a usual maximum of \$200 per loan, \$500 per year, and \$1,000 total while in the University. Interest rates average 3 percent, and repayment schedules vary according to the year in college and financial needs of the student.



Co-signers are required and parent or guardian must co-sign in the case of minors.

#### **NATIONAL DEFENSE STUDENT LOAN FUND**

National Defense Student Loans are available to students who are capable of maintaining good standing and have verified financial need. Preference will be given to students with superior preparation or ability. Students with the best records and highest financial need will be given first consideration. Based on past experience, students with below average academic records probably cannot be helped.

Students may borrow under the National Defense Loan Program an amount determined by their demonstrated financial need. If need justifies it, undergraduates may borrow to a maximum of \$1,000 per year to a total maximum of \$5,000. No interest is charged while the student is in full-time attendance at the University nor for nine months thereafter. Repayments of principal and interest begin nine months after leaving the University and must be completed within a maximum of ten years. Quarterly repayments are required with a minimum repayment of \$45 per quarter. The rate of interest is 3 percent per annum on the unpaid balance. The debt is cancelled in the event of death or permanent and total disability.

If the borrower becomes a full-time teacher either in (1) a public or non-profit elementary or secondary school; or in (2) an institution of higher education, 10 percent of the loan can be cancelled for each year of teaching not to exceed 50 percent of the loan. If the borrower is employed as a teacher of handicapped children or in a school with a predominance of low-income families, a 15 percent yearly cancellation is possible.

#### **APPLICATION PROCEDURE**

Loan applications for the quarters indicated are available and must be submitted during the following periods.

Fall Quarter .....	Aug. 1—Aug. 21*
Winter Quarter .....	Nov. 1—Nov. 21
Spring Quarter .....	Feb. 1—Feb. 21*
Summer Quarter .....	May 1—May 21

\* Application periods for a National Defense Student Loan for the academic year.

#### **EMERGENCY LOANS**

Emergency Loans with a \$50 maximum, 90-day repayment period, and no interest are also available. These emergency funds

may be secured at any time during a quarter when there are sufficient funds.

#### **BANK LOANS**

The Higher Education Act of 1965 established a federal program of low-cost, guaranteed loans. These loans for a maximum of \$1,000 per year for undergraduates are available through local banking institutions.

Repayments of not less than \$360 per year are required and may not extend over a 15 year period after execution of the loan. Many students will be eligible for federal payment of a portion of their interest depending upon their families' incomes.

Further details concerning this program in each state and a list of participating Ohio lending institutions can be secured from the Student Financial Aids Office.

#### **SCHOLARSHIPS**

Scholarships are available to both entering and enrolled students. These scholarships are made available from various sources on the campus as well as outside foundations, industries, interested groups, and individuals. Approximately 4,000 scholarships are awarded yearly.

#### **SCHOLARSHIPS FOR FRESHMEN**

A high school student must rank in the upper fourth of his class to be eligible to apply for scholarships. In addition to class rank, applicants are considered on the basis of test scores, recommendation from the school, and financial need. A number of different scholarships, totaling about 1,200, are available.

#### **FRESHMAN SCHOLARSHIP APPLICATION PROCEDURES**

To apply for a scholarship, a freshman applicant must:

1. Send completed "Parents' Confidential Statement" to the College Scholarship Service before February 15. These forms are available in the high schools.
2. Send a completed "Freshman Scholarship Application" to the Student Financial Aids Office before March 15.
3. Have the high school principal or counselor complete a "Recommendation for Scholarship" and forward it to the Student Financial Aids Office before March 15. This form is furnished with the application.



Each applicant must have taken at least one of the following standardized tests:

1. American College Test.
2. College Entrance Examination Board Scholastic Aptitude Test.
3. National Merit Scholarship Qualifying Test.

As the scores received on these tests will be forwarded by the school official who completes the Recommendation for Scholarship, it is suggested that applicants take the tests prior to the end of the first semester of their senior year.

Only those applicants whose files are complete and have been admitted will be considered for an award. Applicants for the Columbus Campus will be notified of the committee's decision by June 1.

#### **COOPERATIVE HOUSING SCHOLARSHIPS**

Cooperative housing scholarships for undergraduates are available in the Stadium Scholarship Dormitory for men and in the Alumnae Scholarship Houses for women. Because of the cooperative feature of these programs, the cost to the student for room and board is approximately \$330 yearly for women and \$450 for men, as compared to \$888 in the other University residence halls. Students should indicate their interest in this program on the scholarship application. Further information describing these awards may be obtained from the Student Financial Aids Office.

#### **REGIONAL CAMPUS SCHOLARSHIPS**

The University has two-year undergraduate regional campuses located at Lima, Mansfield, Marion, and Newark. Scholarships are available for students who plan to enroll at these campuses. Applicants must secure the required forms from the regional campuses and must have the application and recommendation forms returned to the center by April 15. The Parents' Confidential Statement of the College Scholarship Service must be filed by February 15. In completing the Parents' Confidential Statement applicants must list the location of the campus as well as indicating "The Ohio State University."

For further information a student should contact the campus where he plans to enroll.

#### **SCHOLARSHIPS FOR ENROLLED STUDENTS**

Students now in attendance at The Ohio State University on the undergraduate level

should request an "Enrolled Application" when applying for scholarships. The major scholarship awards made available to this group are The Ohio State University Scholarships. Other University-wide scholarships, including cooperative scholarship housing, are also available. In addition to these, a number of special scholarships are administered in cooperation with the various colleges of the University. These special scholarships for undergraduates are listed in the appropriate college bulletin. Information concerning these awards is available at the college or departmental offices as well as the Student Financial Aids Office.

Unless otherwise designated, the University's scholarship application form will be used for consideration for all awards for which an applicant may be eligible.

Scholarship applications are available November 1 and must be submitted by March 15. Applicants will be notified of the committee's decision by August 1.

#### **SCHOLARSHIPS FOR UNDERGRADUATE TRANSFER STUDENTS**

A limited number of scholarships are available each year for students transferring from other colleges and universities. Only applicants who have completed their admission to The Ohio State University are considered for scholarships, and they must have an exceptionally good record to be selected. Scholarship applications are available November 1 and must be submitted by March 15. Applicants will be notified of the committee's decision by August 1.

#### **EDUCATIONAL OPPORTUNITY GRANTS**

This federal program was established under the Higher Education Act of 1965. It enables the University to award grants to students who qualify under the guidelines of the program. The primary selection criterion is the family's financial circumstances with the major emphasis on students from low-income families.

The grants can be made to any undergraduate students but preference is given to entering freshmen. A student's high school or college record must indicate his ability to maintain good standing in his academic work.

Application should be made on the regular scholarship application blank following the procedures and deadlines listed elsewhere in this section.



### SCHOLARSHIP RENEWAL PROCEDURES

As can be noted on the scholarship listings in this section, a number of scholarships granted to entering freshmen are renewable until graduation. These scholarships may be renewed provided: (1) the student maintains a point-hour ratio based on each year's performance which would place him in the upper third of his class in the college in which he is enrolled; (2) a new application is filed each year before the deadline date of March 15; and (3) that adequate funds are available. Stipends for these renewal awards may vary, depending on the applicant's current financial need.

### SCHOLARSHIPS AVAILABLE TO UNDERGRADUATES

The table in this section indicates the scholarships available University-wide. Unless otherwise indicated, application is to be made to the Student Financial Aids Office, following procedures listed above.

Since the number and type of available awards are constantly changing, the listing is accurate only at the time of printing. Awards added since that time will be granted to the most eligible applicants. Unless otherwise indicated, only one application to Student Financial Aids is needed to be considered for every award.

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## Scholarships Available In All Undergraduate Colleges

NAME	ELIGIBILITY		NUMBER	YEARLY STIPEND
Allen County Alumni Club	Allen County resident	All Years Not Renewable	1	Varies
Alumnae Scholarship Houses	Females	All Years Renewable	56	Room & Board for \$330 per year
Ashville I.G.A.	Graduates of Teays Valley or Westfall High Schools	Freshmen Not Renewable	2	\$400
Athletic Grant-in-Aid	Athletic ability; apply to Athletic Department, St. John Arena, 410 West Woodruff.	All Years Renewable	Varies	Varies
Boys' Club of Columbus	Members of Boys' Club of Columbus; apply to Director of the Boys' Club of Columbus.	Freshmen Renewable	Varies	\$450
Breakfast Optimist Club of Columbus	Franklin County residents, preference to Central High School graduates.	Freshmen Not Renewable	Varies	Varies
Francis E. Brundige	Holmes County residents active in 4-H; apply to County Agricultural Extension Agent, Holmes County.	Freshman Not Renewable	1	\$200
Rollin and Jessie Cockley	Graduates of Bellville, Ohio, High School; apply to Executive Head of the Bellville Local Schools.	All Years Not Renewable	Varies	Varies
Columbus City Panhellenic Association	Female, Franklin County resident	Freshman Not Renewable	1	\$200
Richard DeSelm Memorial	Male member of Symphonic choir showing outstanding leadership; no application required.	Upperclass Not Renewable	1	Varies
Development Fund Prize Awards	Students from winning Alumni Club areas apply to local Alumni Club president.	Freshmen Not Renewable	1 per club	Tuition
Educational Opportunity Grant	Financial need	All Years Preference to Freshmen Renewable	Approx. 2,000	\$200 to \$800
ElectroSonics	Male students enrolled in course of study leading to career in the Aviation Industry. Must have enrolled in Aviation 505.	Upperclass Not Renewable	1	\$500
Edgar M. Erb	Graduates of Union Local High School, Milford Center, Ohio	Freshmen Renewable	Varies	\$300
Marjorie Fawcett's Women's Club Scholarship	No special requirements	Female Not Renewable	1	\$450
General Motors	No special requirements	Freshmen Renewable	4 per enter- ing class	Varies
General University	No special requirements	Freshmen Renewable	Approx. 500	\$100 to \$800
German Fraternity Exchange	Fraternity member majoring in German; apply to Chairman, Department of German.	Upperclass Not Renewable	1	Expenses for 1 year's study at the University of Bonn in Germany
Elizabeth and Ernie Godfrey	No special requirements	All Years Not Renewable	Varies	Varies
Goettingen Scholarship	German major; apply to Chairman, Department of German.	Upperclass Not Renewable	1	Expenses for 1 year's study at the University of Goettingen in Germany
Grand Lodge of Free and Accepted Masons of Ohio	No special requirements	Upperclass Not Renewable	1	\$400
William Green	Liberal Arts majors	Juniors-Seniors Not Renewable	3	\$500
Grimes	Graduates of Urbana, Ohio, High Schools; apply to the Superintendent of Schools, Urbana, Ohio.	Freshmen Not Renewable	2 per enter- ing class	\$275



NAME	ELIGIBILITY		NUMBER	YEARLY STIPEND
Charles F. High Foundation	Male residents of Bucyrus, Ohio, area; apply to the Secretary, Charles F. High Foundation, Bucyrus, Ohio.	Freshmen Renewable	Varies	\$500
International Students	International students; apply to International Students Office.	Upperclass Not Renewable	Varies	Varies
Belva Jones	Female, Franklin County resident	Freshman Not Renewable	1	Varies
Glenna R. Joyce	Male, Franklin County residents	Freshmen Renewable	6 per enter- ing class	Varies
Martin Krumm	Korean students; apply to the International Students Office.	Upperclass	Varies	Varies
Lucy Lelia	Residents of the Alumnae Scholarship Houses; apply to the Assistant for Alumnae Affairs, Alumni House.	Upperclass Not Renewable	Varies	Varies
Ralph T. Lewis	Graduate of the Marion-Harding High School, Marion, Ohio; apply to the Principal of the Marion-Harding High School, Marion, Ohio.	All Years	1	Varies
J. T. and Egbert H. Mack	Selected by Register Foundation, Sandusky, Ohio.	All Years Not Renewable	Varies	Varies
Samuel M. Melton	Upon recommendation of Hillel Foundation	All Years Not Renewable	Varies	Varies
Mortar Board Alumnae	Females	Juniors-Seniors Not Renewable	Varies	Varies
Mothers' Club	Residents of counties where Mothers' Clubs have made funds available; apply to local Mothers' Club President.	Freshmen Not Renewable	Varies	Varies
Ohio District of Key Club International	Members of Ohio District of Key Club International	Freshmen Not Renewable	2	\$250
Ohio State University	No special requirements; available to transfer students.	Upperclass Not Renewable	Approx. 200	\$100 to \$600
Regional Campus	No special requirements; apply directly to Lima, Mansfield, Marion, or Newark Campus. Deadline April 15.	All Years Not Renewable	Varies	Varies
Alfred P. Sloan	Males	Freshmen Renewable	Varies	Varies
Stadium Scholarship Dormitory	Males	All Years Renewable	367	Room & Board for \$450 per year
Star Equipment Company and Star Industrial Supply Corporation	Resident of Central Ohio	Freshman Not Renewable	1	\$500
Student Leader Endowment	Student leaders who will need aid to continue in activities; apply to Student Leader Endowment Fund. Pomerene Hall.	Upperclass Not Renewable	Varies	Varies
University Musical Productions	Performers in the areas of speech, music and dance; apply to University Musical Productions Committee.	All Years Not Renewable	Varies	Varies
Grace High Washburn	Female residents of Bucyrus, Ohio area; apply to the Secretary-Treasurer, Grace High Washburn Trust, Bucyrus, Ohio.	Freshmen Renewable	Varies	\$500
Woman's Relief Corps	Student from Orphan's Home at Xenia, Ohio, who is the son or daughter of a deceased soldier; apply to Woman's Relief Corps, 3125 Braddock Street, Dayton, Ohio 45420.	All Years Renewable	1	Partial remission of fees
Leo Yassenoff	No special requirements	All Years Not Renewable	Varies	Varies

## STUDENT HOUSING

All students applying for admission to the University may request housing accommodations on the official admission application form. Such requests will be forwarded to the Office of Student Housing, which will send housing information and a residence hall contract. If all residence hall rooms have been assigned, information will be disseminated concerning rooming houses and private homes.

All unmarried freshmen and sophomores under 21 years of age who do not live with parents or other close relatives are required to reside in University-owned residence halls.

### RESIDENCE HALLS

University residence halls are designed to offer each student the opportunity to extend his education beyond the classroom to an experience in community living. Through the development of student government within each hall, men and women have opportunities to participate in self-government and in an extracurricular activity program. Each hall is staffed with professionally trained personnel to be of assistance to students in academic, social, and personal development.

The University has 11 residence halls for undergraduate women and 14 for undergraduate men. Residence halls include those in the North Campus which accommodate four students in a suite arrangement consisting of bedroom, study, and bath. Residence halls on the South Campus consist primarily of double and triple rooms. The newest residence hall construction includes two towers on the West Campus along the Olentangy River. These halls consist of suites for four students developed into clusters of 16 where students share a common lounge and a bath. The towers are planned on a co-educational basis.

All residence halls are equipped with single beds, chests of drawers, desks, study lamps, waste-baskets, chairs, draperies, mattresses, mattress covers, and pillows. Bed linen is furnished by the hall, and personal laundry facilities are provided.

### DINING FACILITIES

Excellent meals, prepared under the direction of trained dietitians and experienced food service personnel, are served in an assigned dining room adjacent to each res-

idence hall. Many of the dining rooms are arranged to provide co-educational dining. Every effort is made to provide a balanced, high-quality diet for the student. Meals are included in the housing contract in all residence halls.

### RESIDENCE HALL AGREEMENTS

The University is privileged at the present time to have enough space in University residence halls to accommodate the anticipated need for student housing. It is expected that all freshmen and sophomores as well as upperclassmen desiring residence hall space can be accommodated. Continuing residence in the halls is encouraged and is based upon satisfactory academic performance and citizenship.

All students who desire to reside in residence halls sign a contract for the academic year and are obligated to maintain that contract so long as they are enrolled in the University. Permission to leave a residence hall while under contract is granted only in extreme emergencies and only by the Office of Student Housing.

A non-refundable filing fee of \$20 must accompany the residence hall contract. Each student signing a residence hall contract will be required to make a pre-payment of \$100 on or before August 1, December 15, March 15, or June 1, whichever is appropriate for the beginning date of the contract.

All residence hall payments are made quarterly. Each quarterly payment must be made by the third business day preceding the first day of classes each quarter.

### OTHER TYPES OF HOUSING FOR WOMEN

#### Alumnae Scholarship Houses

Two Alumnae Scholarship Houses have been established by The Ohio State University Alumnae Council as cooperative houses for women who have high scholastic ability and definite financial need. Costs are reduced considerably through the cooperative efforts of the residents who work approximately one hour per day. Each house has facilities comparable to those offered in other University living units. Candidates must file scholarship applications in the Student Financial Aids Office by March 15 in order to be considered for occupancy in one of these houses beginning in the Autumn Quarter.



### Sororities

Nineteen sororities on the campus have houses where active affiliated members are encouraged to live if space permits. Freshmen and pledges may not reside in sorority houses.

### Organized Rooming Houses

There are a number of privately owned and operated rooming houses in the University area. Most of these houses provide cooking facilities. The average house has a capacity of 18 women students. Prices range from \$100 to \$150 per quarter for room. Some rooming houses require residency for an academic year while others require a quarter's residency. Space in rooming houses may be secured by contacting the Office of Student Housing. Students are asked to visit the campus and secure accommodations in person. Upper-class women may reside in rooming houses.

### OTHER TYPES OF HOUSING FOR MEN

#### The Stadium Scholarship Dormitory

The Stadium Scholarship Dormitory accommodates 370 men in much the same kind of facilities as in the residence halls. Men admitted to the Stadium Scholarship Dormitory are chosen in the same way scholarships are awarded. Living costs are reduced through the efforts of the residents to maintain the dormitory. A resident normally works five to eight hours per week in return for a substantial sav-

ings in room and board fees. This facility has its own dining room, study, and recreation rooms.

### Fraternities

A number of men enjoy the advantages of living in fraternity houses. Forty-three Greek letter organizations have for many years maintained establishments which provide excellent room and board arrangements. A freshman pledge may move into a fraternity house at any time if he has not signed a University housing contract and there is adequate space in the fraternity house. Prospective students who are interested in possible membership should write to Assistant Dean, Student Relations, 458 Ohio Union, 1739 N. High Street, Columbus, Ohio 43210.

### Off-Campus Housing

Furnished rooms in Columbus provide housing for many men students. The rates vary from \$30 to \$35 a month for single rooms; \$25 to \$30 for double rooms (per student). Students entering the University in Autumn Quarter should visit Columbus during early summer to choose a suitable room. Students entering at times other than Autumn Quarter should arrange for a room several weeks prior to the beginning of classes. Further information regarding Off-Campus housing may be secured by writing or visiting the Office of Student Housing.

# Office of Educational Services

## OFFICERS

John T. Mount.....	Vice President
<i>Office: 201 Administration Building—293-6344</i>	
Bruce C. Harding.....	University Archivist
<i>Office: 019 Law Building—293-2409</i>	
Ronald B. Thompson.....	Executive Dean for
Admissions and Registrations	
<i>Office: 104 Administration Building—293-7921</i>	
Ted R. Robinson.....	Director of Admissions
<i>Office: 102 Administration Building—293-1321</i>	
Dean O. Clark.....	Registrar
<i>Office: 203 Administration Building—293-7941</i>	
Robert W. McCormick.....	Assistant Vice President
for Educational Services	
<i>Office: 109 Administration Building—293-4209</i>	
Richard B. Hull.....	Director of Telecommunications Center
<i>Office: 2470 North Star Road—293-6641</i>	
William H. Ewing.....	Coordinator of Radio-TV
Instruction Office	
<i>Office: 19 Derby Hall—293-6751</i>	
Thomas E. Miller.....	Director of Teaching Aids Laboratory
<i>Office: 3 Lord Hall—293-7335</i>	
Hal J. Bashman, Colonel.....	Professor of Air Science
<i>Office: 300 Military Science Building—293-5441</i>	
Arthur D. von Rohr, Colonel.....	Professor of Military
Science	
<i>Office: 204 Military Science Building—293-6075</i>	
Wilbur J. Wehmeyer, Captain.....	Professor of Naval Science
<i>Office: 182 Naval Annex, Physical Education Building—</i>	
<i>293-6015</i>	
John D. Lucas.....	Director of Alumni Records
<i>Office: 4B Alumni House—293-2511</i>	

## DIVISION OF CONTINUING EDUCATION

The Office of the Continuing Education Division is located in Room 109, Administration Building, 190 North Oval Drive. The office is open from 8 a.m. to 5 p.m., Monday through Friday, and from 8 a.m. to 12 noon on Saturday.

### HISTORY OF THE DIVISION

The continuing education programs of The Ohio State University have developed gradually over the years. This development has been two fold:

1. Through non-credit workshops, seminars, and short courses developed and offered by the various colleges, departments, and schools, and
2. Through the offering of undergraduate credit course opportunities.

In October of 1961, the Board of Trustees of the University, recognizing the expanding requirements in these areas, gave the formal responsibility for this development to a new administrative division, the Office of Part-time and Continuing Edu-

cation. (The name of this Division was changed in 1965 to the Division of Continuing Education.)

## CREDIT COURSE INFORMATION

### Objectives

The Ohio State University recognizes that there are many adults who desire to pursue university academic undergraduate credit programs which are not essentially degree-oriented but are in many cases related to occupational, professional, or personal purposes and needs.

### Organization

With this objective in mind, adult students (normally 21 years of age or over) are enrolled in the Division of Continuing Education on the central campus or on the branch campuses rather than in one of the undergraduate colleges of the University. The Division is responsible for the administration and academic counseling of these students.

## CATEGORIES OF STUDENTS

### Adult Special Students

These are students who desire to take University level undergraduate credit courses because of personal interests, occupational or vocational upgrading but who are not pursuing a degree or a Public School certification program. They may or may not already have college degrees.

### Transient Students

These are undergraduate students who are pursuing degrees at other colleges or universities and who wish to take courses at this University. They may enroll for one quarter and the credit courses taken are those recommended by the college or university which will award the degree.

### Admission Procedures

Students in the above categories who wish to enroll but who do not anticipate becoming candidates for University degrees may obtain application materials from the Admissions Office of the University (Administration Bldg., 190 North Oval Drive,



Columbus, Ohio 43210). General inquiries should be directed to the Division of Continuing Education.

Students applying for admission will be required to furnish sufficient academic and employment information on the application forms to enable the Division and the Admissions Office to determine eligibility for admission on a sound academic basis.

A student under dismissal from one of the colleges of the University or from another academic institution will be accepted for admission as an adult student only by action of the Executive Committee of the Division of Continuing Education and the Admissions Office.

#### **FEES, REGISTRATION, AND OTHER POLICIES AND PROCEDURES**

Students enrolled in this Division must comply with the same policies and procedures as regular students. This includes fees, academic standards, and registration procedures.

#### **CURRICULUM**

Students enrolled in this Division may take any undergraduate level courses for credit offered by the University provided they have met the individual course prerequisites. Courses may be scheduled either during the day or evening. These course offerings are described in the University Bulletin.

#### **SCHEDULE OF COURSES**

The times at which each course is offered are indicated in the Academic Planning Guide found in the last section of this volume. In preparing schedules, consult the current quarterly Master Schedule which may be secured without charge at the Office of Continuing Education.

#### **CREDIT**

Students enrolled in this Division will receive full University academic undergraduate credit for work satisfactorily completed. In order to receive graduate credit, students must be enrolled in the Graduate School.

#### **STUDENTS DESIRING A DEGREE**

Adult students who are candidates for a University degree must be admitted to and registered in one of the University's undergraduate colleges, the Graduate School, or a professional college. Such students rooms, auditoriums, and housing and din-

should apply to the Ohio State University, Admissions Office, 190 North Oval Drive, Columbus, Ohio 43210.

Adult students who are registered in this Division as non-degree students and who decide to undertake academic work leading to degrees will be required to file applications for transfer to degree-granting colleges of the University, and all academic work taken will be evaluated at that time in terms of the proposed degree programs. Such students must complete all the qualifications for degrees outlined in the appropriate portions of this Bulletin. The filing of complete credentials will be required at this time.

Adult students enrolled for certification purposes, either on full-time or part-time bases must be admitted to and registered in the appropriate colleges.

#### **WORK AS AN AUDITOR**

Those students who wish to be admitted for the purpose of auditing a given University course may do so after satisfying the appropriate entrance requirements and provided permission of the Professor and the Dean of this Division are secured. There is no reduction in fees for students so admitted and registered.

#### **NON-CREDIT CONFERENCES AND SHORT COURSES**

The Continuing Education Division is responsible for the coordination of all of the non-credit conferences, seminars and workshops developed by the colleges, schools and departments of instruction of the University.

Continuing education is an integral part of the programs of a university dedicated to graduate and professional education. As President Novice G. Fawcett has said: "Knowledge is expanding today with unprecedented rapidity. Men and women in a variety of occupations now must return frequently to the University campus to match their competencies with advances in many fields." In recognition of this concept, the University's Board of Trustees has given approval to a multi-million dollar project, the "Center for Tomorrow," which will house the following areas of University activity—Division of Continuing Education, Telecommunications Center, the Mer-shon Center for Education in National Security, the Division of Alumni Records, and The Ohio State University Alumni Association. This Center will include seminar



ing facilities for continuing education participants.

During a typical year, more than 110,000 persons participate in continuing education activities sponsored by The Ohio State University. These persons participate in non-credit seminars, workshops, conferences, and other programs sponsored by virtually every instructional unit of the University.

## DEPARTMENTS

### TELECOMMUNICATIONS CENTER

The administrative responsibility for the educational services in the areas of television, radio, and teaching aids is placed in the Office of Educational Services. Questions regarding these areas should be directed to the appropriate officer as listed above.

### AIR SCIENCE

Students interested in seeking a commission in the United States Air Force may qualify by completing either the four-year or two-year Air Force ROTC program. Both programs consist of a curriculum of Aerospace Studies designed to produce a junior officer who is a competent leader and administrator, articulate, knowledgeable, and capable of assuming executive duties upon graduation.

#### The Four-Year Program

The four-year Aerospace Studies curriculum consists of the General Military Course (GMC) taken during the Freshman and Sophomore years and the Professional Officer Course (POC) taken during the Junior and Senior years. The GMC consists of one classroom hour and one laboratory hour per week each quarter for six quarters. The POC consists of three classroom hours and one laboratory hour per week each quarter for six quarters.

During the Freshman and Sophomore years, students may achieve cadet non-commissioned officer rank. During the Junior and Senior years, students become cadet officers. Each is issued an Air Force Officer's uniform which he keeps upon graduation. During the Junior and Senior year, the student receives \$50.00 per month plus certain other compensations which total over \$1400 during the two years. A limited number of students qualify for Air

Force full scholarships which pay all tuition, books, fees, plus \$50.00 per month.

Students in the four-year program attend a four-week summer encampment at an active Air Force Base, normally between the Junior and Senior year. They are provided round-trip transportation (airline or reimbursement for automobile travel), food, lodging, medical care, and pay of \$131.48 per month.

Students enrolled in a five-year college program may be granted non-attendance (leave) status during their third or fourth years.

#### The Two-Year Program

The two-year Air Force ROTC program may be pursued by any student, graduate or undergraduate, who plans to spend two full years on campus after enrolling. Students enrolled in a four-year college program take the two-year ROTC program during their Junior and Senior years. Students in a five-year college program may take ROTC during any two years following completion of the Sophomore year. During the summer immediately prior to admission to the two-year Air Force ROTC program, a student must complete a six-weeks summer encampment at an active Air Force Base. Round-trip transportation, food, lodging, medical care, and pay of \$131.85 is provided students attending the six-weeks summer encampment. Students in the two-year program receive the same \$50.00 per month and other compensations received by students in the four-year program.

Students in either the two-year or four-year program who qualify and apply for Air Force pilot training are given, at no extra cost to the student, a university course of flight instruction consisting of 36½ hours of flight in a light aircraft and leading to a private pilot's license.

Students in both two- and four-year programs participate in overnight field trips to Space Flight Centers and Air Force Bases such as Cape Kennedy, Florida, Vandenberg Air Force Base, California, and others, as a regular part of the curricula. Transportation on the field trips is provided in Air Force aircraft.

Upon graduation the student may go directly to active duty or may apply for a delay in his call to active duty for from two to four years to pursue graduate studies. Graduates who go directly to active duty are eligible after one year to apply



for graduate study under the Air Force Institute of Technology (AFIT). Officers pursuing graduate studies under AFIT receive full pay and allowances while attending universities as full-time students.

Completion of 12 quarter hours in either the four-year or two-year Air Force ROTC program will satisfy the additional electives requirement set forth under "graduation requirements" in the undergraduate information section of this bulletin.

Students enrolled formally in the Professional (Advanced) Officer's Course of Air Force ROTC are deferred from Selective Service induction. Students in the General (Basic) Course who express interest in, and are qualified for, Professional (Advanced) Course enrollment may apply for military deferment. Deferment, if granted is effective until completion of a normal undergraduate course of instruction provided the student continues his Air Force ROTC enrollment and maintains satisfactory academic progress toward graduation.

#### MILITARY SCIENCE

In accordance with the Morrill Act, passed in 1862, under which the University was established, military instruction is included in the curriculum. Pursuant to this and through governmental contract, the University established a Senior Division of the Army Reserve Officers Training Corps (ROTC). The Department of Military Science administers this unit and its four year program of instruction. The general objective of the program is to produce junior officers who by their education, training, and inherent qualities are suitable for continued development as officers in the United States Army. Instruction covers military fundamentals common to all branches of the service. The aim is to provide a basic military education and, in conjunction with other college disciplines, to develop individual character and attributes essential to an officer. Upon successful completion of ROTC, the graduate is commissioned as a second lieutenant in the United States Army Reserve. Those who are designated as Distinguished Military Graduates may, through application and selection, accept a professional career as a Regular Officer in the United States Army.

The program consists of two parts: The Basic Course extending over the Freshman and Sophomore years and the Ad-

vanced Course during the Junior and Senior years. Successful completion of the Basic ROTC course, or credit in lieu thereof for prior equivalent training or service, is a prerequisite for the Advanced Course. Credit toward graduation is normally given for the Military Science courses on the same basis as for other courses offered in the University.

Enrollment in the Advanced Course is elective on the part of the student but is confined to those selected by the Professor of Military Science. Such selection is based upon grades attained in Military Science, other academic work and upon demonstrated potential in leadership and in other attributes of commissioned officers.

Students formally enrolled in the Advanced Course and those in the Basic Course who express interest in and are qualified for Advanced Course enrollment may apply for a military deferment from Selective Service induction. This deferment, if granted, is effective until completion of normal undergraduate course of instruction provided the student continues his Army ROTC enrollment and maintains satisfactory academic progress toward graduation.

Students selected for and formally enrolled in the Advanced Course are paid \$50 a month, exclusive of a six-week period of summer camp, during which they will receive approximately \$180 plus travel expenses to and from camp. An officer style "Army Green" uniform is furnished each student. This uniform becomes the property of each student receiving a commission. Upon graduating and receiving a Reserve commission, the graduate may expect to serve on active duty for a two-year period and remain a member of a Reserve Component of the Army until the sixth anniversary of receipt of his commission.

A Distinguished Graduate receiving a commission as a Regular Officer in the United States Army will enter upon his career on the same day that he accepts that commission, and must serve a minimum of three years.

A scholarship program has been instituted by the Department of the Army awarding both two-year and four-year scholarships. Two-year scholarships are selected from cadets in the Basic Course, while four-year scholarships are awarded to high school graduates prior to their entering the University. The scholarships provide for all tuition and fees required in a course of



study for books and materials and, in addition, pay the recipient \$50 per month for the periods of actual attendance. During the time that the recipient attends Summer Camp, he is paid one-half the base pay of a second lieutenant with less than two years service, plus travel expense both ways. Upon receipt of his Regular Army commission, he must spend a minimum of four years on Active duty.

#### NAVAL SCIENCE

Students enrolled in the NROTC Program are classified as either "Contract" or "Regular": both classifications defer the enrolled student from the draft. The Naval Science courses are normally taken during four consecutive years. Five-year students are granted leave for one year during either their third or fourth year. Included under the "Contract" Program is a special "two-year Contract" Program: here the student attends a special summer camp prior to his last two years in school. He then joins the "Contract" Program in his Junior year.

#### Contract Students

Contract students are furnished uniforms and Naval Science textbooks all four years and are paid \$50 per month during their Junior and Senior years. They must have had high school math, including algebra and trigonometry, or must complete one college math course approved by the Professor of Naval Science by the end of the Sophomore year. At the end of the Junior year, they make one six-week, all-expense-paid, at-sea training period aboard an operating Navy ship, occasionally to a foreign port, and are paid \$120.60 a month during this period. Upon graduation they receive Reserve commissions in the Navy or Marine Corps and serve three years on active duty after which they may apply for Regular commissions, extended active duty, or inactive Reserve duty to complete six years service.

Students interested in the program should make application to the Professor of Naval Science while on campus during their orientation visits. Students interested in the special two-year program should make application to the Professor of Naval Science during the winter quarter of the Sophomore year.

#### Regular Students

Regular students are pre-selected through a process starting with a nationwide, competitive examination in December of the previous year. They are furnished uniforms, all books, have tuition and fees paid, and receive \$50 per month as a retainer during the four-year program. These students must take three quarters of college mathematics and three quarters of physics at a level approved by the Professor of Naval Science by the end of their second year in the Regular Program. Placement exams, giving the student credit for such courses, may count as one quarter of the mathematics requirement. The Regular students participate in three summer, at-sea training periods, two of which are eight-week training periods at sea on operating ships of the Navy; the third is an eight-week field trip to amphibious and aviation bases. Upon graduation they are commissioned in the Regular Navy or Marine Corps and serve four years on active duty. At the conclusion of that time, they may apply for transfer to inactive duty in the Reserve to complete six years' service.

During their Senior year, Regular and Contract students may apply for flight training which will commence upon their commissioning.

#### PRESIDENT'S ANNUAL REVIEW

The President's Annual Review is a combined Army, Navy, and Air Force R.O.T.C. exercise held on the Oval during each Spring Quarter. This is an integral part and the final practical exercise of the training laboratory curriculum.

#### ARMED FORCES FOR WOMEN

Women college juniors and seniors are eligible to apply for officer's commission in one of the branches of the Armed Forces—Army, Navy, Air Force, or Marine Corps. A graduate who successfully meets all requirements and is accepted for one of the programs will be given officer training. This training may come prior to or after commissioning, depending upon the program selected. The Army, Navy, and Marine Corps also offer programs for training in the summer following the junior year.

Salary is paid during training and uniforms, medical care, quarters, and meals are provided by the government.





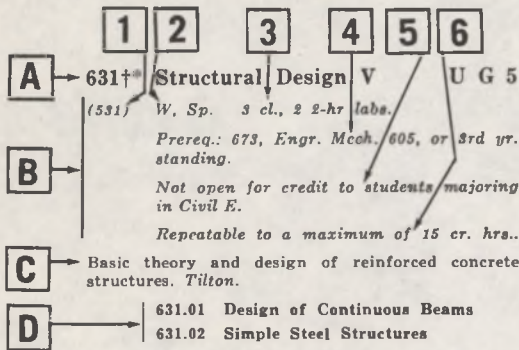


## Courses of Instruction

The following pages present the descriptions of courses of instruction offered by the University at the undergraduate, graduate, and professional levels. The departments and schools which offer the courses are arranged in alphabetical order.

The courses in each are preceded by the names of faculty members with the rank of instructor, lecturer, assistant professor, associate professor, and professor in that department or school. These lists are accurate as of October 1, 1967.

The sample provided below itemizes some of the varieties possible. (Note carefully item 1, section B)



### EXPLANATION OF COURSE LISTINGS

#### **A** The material in bold type includes:

The course number: 631

Note—This Catalog reflects the University's new Classification and Course Numbering System which appears in detail in the following section.

A dagger—denoting that the course will not be offered this year: †

An asterisk—indicating that the course is offered every other year: \*

The course title: Structural Design V

The instructional level: U G

U = Undergraduate

UG = Advanced Undergraduate and Graduate

G = Graduate

P = Professional (for professional students enrolled in that particular college or school only)

Credit hours: 5

#### **B** The material in italics includes:

- 1** (531) Number of course under previous number system. Students with credit for this course under this number are not permitted to enroll in it again under the new number system (unless the course is stated as being repeatable).

#### **2** Quarters of Offering:

Su = Summer

A = Autumn

W = Winter

Sp = Spring

Summer Quarter is further divided into 1st Term and 2nd Term. See the University Calendar at the back of any Catalog Book for dates. Lack of staff or low student enrollment may preclude offering a course, particularly at the advanced level, every quarter for which it is authorized.

- 3** Classroom and laboratory hours: 3-cl., 2 2-hr. labs. In the illustration above, the 5 hours of credit are earned through satisfactory completion of course work which involves attending class three days a week and attending two 2-hr. laboratory periods per week.

- 4** Prerequisites: 673, Engr. Mech. 605, or 3rd yr. standing. The course number(s) or other information indicate the preparation or classification prerequisite to enrollment in the course. If no department name is listed, the course number refers to the specific course within the same department. If a class standing such as "3rd-year standing" is listed, only students with that or higher class level are eligible for enrollment. The school or department office should be consulted in cases of question as to eligibility for taking the course.

The number of the course implies the prerequisites listed in the University Classification and Course Numbering System shown in the following section.

- 5** Additional information affecting a student's enrollment in a course: Not for credit to students majoring in Civil Engineering.

- 6** Repeatability Clause: The repeatability clause indicates the maximum number of hours a course may be repeated.

#### **C** A brief description of the course:

Basic theory and design of reinforced concrete structures.

Instructor's name: Tilton.

#### **D** The decimal subdivisions:

The numbers 631.01 and 631.02 indicate subdivisions of the generic number, 631. Whenever decimals appear, a student should register for the entire number (including the desired decimal subdivision) rather than the generic number alone.



## UNIVERSITY CLASSIFICATION AND COURSE NUMBERING SYSTEM

Beginning with this 1968-69 academic year, the system of numbering courses offered by the University is as follows:

NUMBERS	COURSES	PREREQUISITES
000-099	<b>Non-Credit Courses (except certain seminars and colloquia)</b>  Orientation courses  Remedial courses  Experience courses with student not under direct supervision of faculty  Courses with credit added to graduation requirements	None
100-299	<b>Courses Providing Undergraduate Credit Only</b>	
100-199	Basic courses providing undergraduate credit, but not to be counted on a major or field of specialization in <i>any</i> department  Beginning courses required or elective courses which may be prerequisite to other courses	None, or specified course(s) numbered 100-199
200-299	Basic courses providing undergraduate credit which may be counted on a major or field of specialization (in your and/or other departments)	45 qtr. hrs. in collegiate courses, exclusive of ROTC and Physical Education; or  Specified course(s) numbered 100-199; or Satisfactory placement on entrance examinations when applicable.
300-499	<b>Courses Providing Undergraduate Credit or Professional Credit</b>	
300-399	Intermediate courses providing undergraduate credit which may be counted on a major or field of specialization	90 qtr. hrs. in collegiate courses, exclusive of ROTC and Physical Education; or

NUMBERS	COURSES	PREREQUISITES
<b>(300-499 continued)</b>		
400-499	<p>Basic courses in the Professional Divisions of the Colleges of Education, and Engineering</p> <p>Basic courses in the Colleges of Dentistry, Pharmacy, and Veterinary Medicine</p>	Specified course(s) numbered 100-399
500-799	<p><b>Courses Providing Undergraduate Credit and May Provide Graduate Credit; Courses Providing Professional Credit and May Provide Graduate Credit</b></p>	
500-599	<p>Intermediate courses providing undergraduate credit which may be counted on a major or field of specialization, and may provide graduate credit only in other departments</p>	15 qtr. hrs. in courses in the same discipline numbered 200 or higher, or
	<p>Intermediate courses in the Professional Divisions of the Colleges of Education, and Engineering;</p> <p>Intermediate courses in the Colleges of Dentistry, Pharmacy, and Veterinary Medicine</p>	10 qtr. hrs. in courses numbered 200 or higher in the same discipline, plus 10 qtr. hrs. in courses numbered 200 or higher in specified allied disciplines
	<p>Basic courses in the Colleges of Law, and Medicine</p>	Baccalaureate degree
600-699	<p>Advanced courses providing undergraduate credit which may be counted on a major or field of specialization, and providing graduate credit (in your and/or other departments)</p>	15 qtr. hrs. in courses in the same discipline numbered 300 or higher, or
	<p>Advanced courses in professional divisions and professional colleges</p>	10 qtr. hrs. in courses numbered 300 or higher in the same discipline, plus 10 qtr. hrs. in courses numbered 300 or higher in specified allied disciplines.
700-799		15 qtr. hrs. in courses in the same discipline numbered 400 or higher, plus additional specified course(s) numbered 600 or higher
800-999	<p><b>Course Providing Graduate Credit Only</b></p>	<p>30 qtr. hrs. in courses in the same discipline, or</p> <p>20 qtr. hrs. in the same discipline, plus 25 qtr. hrs. in specified allied disciplines</p>



# Accounting

Office: 452 Hagerty Hall, 1775 South College Road

**Professors** McCollough (Chairman), Burns, Dickerson (Emeritus), Eckelberry (Emeritus), Fertig, Grimstad, Heckert (Emeritus), Kindig, Kollaritsch, Lyle, McCoy, and Shonting (Emeritus); **Associate Professors** Black, Brush, Burnham, Livingstone, Northrup, Stanley; **Assistant Professors** Allen, Battaglia, Bolon (Emeritus), Gordon, Li, and Vanasse.

## 201 Outline of Accounting U 5

(510) A, Sp. 5 cl.

*Not open to students with credit for 211 or equiv.*

Survey of accounting in modern business. This course is intended for students whose major interest is in fields other than business.

## 211 Introduction to Accounting U 5

(501) Su, A, W, Sp. 5 cl.

*Prereq. or concur.: Econ. 201 or equiv.*

*Not open to students with credit for 201 or equiv.*

The uses of accounting reports in management decisions and in control of business enterprises.

## 212 Introduction to Accounting U 5

(502) Su, A, W, Sp. 5 cl.

*Prereq.: 211 or equiv. and Econ. 201 or equiv.*

*Not open to students with credit for 201 or equiv.*

The accrual interpretation of transactions and fundamentals of income determination, uses of financial statements by persons outside the firm.

## 221 Accounting Methods U 5

(503) Su, A, W, Sp. 3 cl. & 2-hr. labs.

*Prereq.: 212 or equiv.*

The application of accounting techniques to recording and reporting financial information. Special emphasis is given to accounting systems and the use of working papers.

## 415 Factory Costs U 5

(624) A. 5 cl.

*Prereq.: 212 or equiv.*

*Not open to majors in Acc.*

Survey of industrial cost accounting for the student whose major interest is in fields other than accounting.

## 523 Financial Accounting U 4

(605) Su, A, W, Sp. 4 cl.

*Prereq.: 221 or equiv.*

*Not for graduate credit for majors in Acc.*

Analysis and interpretation of financial statements, advanced study of concepts of asset valuation and income determination.

## 524 Financial Accounting U G 4

(606) Su, A, W, Sp. 4 cl.

*Prereq.: 523 or equiv.*

A continuation of 523 with special emphasis on the accounting entity and business combinations.

## 525 Cost Accounting U G 4

(603) Su, A, W, Sp. 4 cl.

*Prereq.: 221 or equiv.*

*Not open to students with credit for 415 or equiv. Not for graduate credit for majors in Acc.*

Basic concepts and techniques of industrial accounting; historical and standard costs; budgeting; management use of cost accounting information.

## 526 Tax Accounting I U G 4

(641) Su, A, W, Sp. 4 cl.

*Prereq.: 201 or 212 or equiv.*

*Not for graduate credit for majors in Acc.*

Fundamentals of federal, state, and local taxation, with major emphasis upon the federal income tax provisions having common application to all types of taxpayers.

## 531 Principles of Automatic Data Processing U G 3

(623) Su, A, W, Sp. 2 cl. 1 2-hr. lab.

*Prereq.: 212 or equiv. and Econ. 442 or equiv. or permission of instructor.*

The principles of processing business data automatically; the uses and limitations of computers in business; techniques used in formulating and solving business problems on computers.

## 535 Advanced Cost Accounting U G 4

(719) Sp. 4 cl.

*Prereq.: 525 or equiv.*

Advanced study of selected applications of cost accounting concepts to management problems involving performance measures with emphasis on budgetary control and standard costing.

## 536 Tax Accounting II U G 3

(642) Sp. 3 cl.

*Prereq.: 221 and 526 or equiv.*

Advanced study of complex problem areas in taxation confronting the professional tax advisor, emphasizing the structure of tax provisions and opportunities for planning and control.

## 627 Auditing Principles and Procedures U G 5

(735) Su, A, W, Sp. 5 cl.

*Prereq.: 524 and 525 or equiv.*

Basic concepts and standards of auditing; audit procedures and working papers; internal and external audit reports.

## 628 Accounting Practice U G 4

(713) Su, A, W, Sp. 4 cl.

*Prereq.: 524 and 525 or equiv.*

A study of the accounting concepts and standards underlying corporate and non-corporate financial statements, including consideration of typical accounting problems.

## 689 Field Work in Accounting U G 15

(740) Su, A, W, Sp.

*Open only to students who hold internships with public accounting firms or with industrial concerns, for which advanced approval has been given by the department. 15 cr. hrs. and one qtr. of residence will be added to graduation requirements for students enrolled in this course.*

## 693 Individual Studies U G 2-5

(799) Su, A, W, Sp.

*Repeatable to a maximum of 15 cr. hrs.*

Individual reports on selected accounting problems in the following fields of accounting. Registration for this course number shall be followed by the letter designating the field of study.

- a. Auditing
- b. Budgeting
- c. Cost Accounting
- d. Systems
- e. Taxes
- f. Theory

**711 Introduction to Management Accounting U G 3**

(843) A, Sp. 3 cl. and conf.

A survey of accounting principles from the viewpoint of management; income measurement; analysis and interpretation of accounting data, internal reports.

**712 Introduction to Management Accounting U G 3**

(844) Su, W. 3 cl. and conf.

Prereq.: 711 or equiv.

Continuation of 711.

**811 Business Controls G 3**

(801) A, Sp.

Prereq.: Two qtrs. or equiv. of Acc. and admission to the M.B.A. program.

Not for graduate credit for majors in Acc.

Examination of business planning and the controls over operations and property; the use of accounting data in the management enterprise.

**831 Accounting Systems G 3**

(724) W, Sp. 3 cl.

Prereq.: 524 and 525 or equiv.

The principles underlying the design and installation of accounting systems.

**844 Theory and Practice G 3**

(817) Su, A. 3 cl.

Prereq.: 524 or equiv.

Readings, reports, and advanced problems in accounting.

**845 Controllership G 3**

(820) Su, A. 3 cl.

Prereq.: 30 cr. hrs. in Acc. or equiv.

The accounting executive's role in the management of an enterprise; accounting data for planning, coordination, control, and protection.

**846 Advanced Tax Accounting G 3**

(812) W, Sp. 3 cl.

Prereq.: 526 or equiv.

Tax alternatives and tax planning; tax research; post-filing problems and procedures.

**847 Advanced Auditing G 3**

(713) W, Sp. 3 cl.

Prereq.: 627 or equiv.

Growth of the auditor's liability and its effects on auditing procedures; advanced auditing problems; discussion of current material affecting the auditing profession.

**851† Accounting Problems of Financial Institutions and Fiduciaries G 3**

(828) W. 3 cl.

Prereq.: 30 cr. hrs. in Acc. or equiv.

Accounting principles and problems peculiar to banks, insurance companies, brokerage and investment houses, receivers, executors, and trustees.

**852 Governmental Accounting G 3**

(830) Sp. 3 cl.

Prereq.: 30 cr. hrs. in Acc. or equiv.

The application of accounting principles to government; problems relating to funds, appropriations, and allotments.

**853 Accounting Policies of Regulatory Agencies G 3**

(856) Sp. 3 cl.

Prereq.: 30 cr. hrs. in Acc. or equiv.

Accounting policies of the Federal Power Commission, Federal Communications Commission, Securities and Exchange Commission, and Ohio Public Utilities Commission.

**854 Accounting Aspects of Business Policy Determination G 3**

(860) W. 3 cl.

Prereq.: 30 cr. hrs. in Acc. or equiv.

Case studies with particular attention to accounting analysis and application thereof to business problems.

**861 Seminar in Accounting G 3**

(804) Su, A, W, Sp.

Repeatable to a maximum of 9 cr. hrs.

**998 Research in Accounting: Thesis G Arr.**

(950) Su, A, W, Sp.

Research for thesis purposes only.

**999 Research in Accounting: Dissertation G Arr.**

(950) Su, A, W, Sp.

Research for dissertation purposes only.

## Administrative Science Survey Courses

**001 College Orientation U 0**

(401) Su, A, W.

Prereq.: Admission to College of Administrative Science with fewer than 45 qtr. hrs.

**101 Business and Society U 3-5**

(402) A, W, Sp. 3 to 5 cl.

Prereq.: Participation in the College Junior Division Honors Program. Permission of instructor.

Repeatable to a maximum of 15 cr. hrs.

A critical examination of the socio-economic framework of business. Seminar discussion of selected readings. Lynn, Bartels, Helfrich, Kelley, Bodenhorn, and Brown.

**301 College Seminar U 2-5**

(798) Su, A, W, Sp. 2-5 cl.

Prereq.: Permission of instructor.

Repeatable to a maximum of 15 cr. hrs.



## Aeronautical and Astronautical Engineering

Office: 328 Civil and Aeronautical Engineering Building,  
2036 Neil Avenue

Professors Von Eschen (Chairman), Burggraf, Edse, Gatewood, Lee, and Li; Visiting Professor Stewartson; Associate Professors Bailey and Mallett; Assistant Professors Gregorek, Nerem, and Petrie.

### 400 Elements of Aeronautics and Astronautics U 4

(681) A. 4 cl.

Prereq.: Physics 253, Math. 255 or concur.

An integrated study at an intermediate level of dynamics, fluid mechanics, propulsion, and light weight structures as related to Aeronautical and Astronautical Engineering.

### 401 Elements of Aeronautics and Astronautics U 4

(682) W. 4 cl.

Prereq.: 400.

Continuation of 400.

### 500 Elements of Aeronautics and Astronautics U 4

(683) Sp. 4 cl.

Prereq.: 401.

Continuation of 401.

### 505 Aeromechanics U 4

(688) Sp. 4 cl.

Prereq.: 401.

Introduction to the nature and properties of aerodynamic fluids from microscopic and macroscopic points of view.

### 594 Special Studies in Aeronautical and Astronautical Engineering U 3-5

(698) A, W, Sp. 3-5 cl.

Prereq.: Permission of department.

Repeatable to a maximum of 15 cr. hrs.

Special studies in aeronautical and astronautical engineering are undertaken to satisfy various nonrecurring needs for aeronautical and astronautical subject matter outside of the normal course structure of the department.

### 600 Aerokinetics U G 4

(700) A. 4 cl.

Prereq.: 505.

Derivation of fundamental equations governing internal and external aerodynamic flows.

### 603 Aerothermochemistry U G 4

(705) W. 4 cl.

Prereq.: 600.

The aerodynamics of one-dimensional compressible flow from the molecular-kinetic point of view including chemical reactions in the fluid.

### 606 Motion and Deformation of Flight Vehicles U G 4

(729) A. 4 cl.

Prereq.: 500, Eng. Mech. 510, Math. 513.

Derivation of the basic equations and methods of analysis governing the motions, deformations, and resulting stresses encountered by flight vehicles.

### 620 Stability and Control of Flight Vehicles U G 4

(724) Sp. 4 cl.

Prereq.: 606.

Standard stability and control analysis, introduction to system response analysis.

### 640 Flight Vehicle Structures U G 4

(730) W. 4 cl.

Prereq.: 606.

Stress and deformation analysis of light weight structures for flight vehicles under static and dynamic loadings.

### 641 Structural Design of Flight Vehicle Components U 4

(731) Sp. 2 cl., 2 3-hr. labs.

Prereq.: 640.

### 660 Classical Aerodynamics U G 4

(708) W. 4 cl.

Prereq.: 600.

Fundamentals of steady and unsteady incompressible, nonviscous aerodynamic flows with applications to oscillating airfoils and finite wings.

### 661 Compressible Aerodynamics U G 4

(707) Sp. 4 cl.

Prereq.: 603, 660.

The fundamentals of the aerodynamics of compressible fluids.

### 693 Special Problems in Advanced Aeronautical and Astronautical Engineering U G 2-10

(799) Su, A, W, Sp.

Prereq.: Written permission of department.

Repeatable to a maximum of 15 cr. hrs.

Special studies in aeronautical and astronautical engineering in one or more areas, including aircraft structures, aerodynamics, propulsion, flutter and vibration, and stability and control.

### 694 Advanced Studies in Aeronautical and Astronautical Engineering U G 2-10

(798) Su, A, W, Sp.

Prereq.: Written permission of department.

Repeatable to a maximum of 15 cr. hrs.

Special advanced topics in aeronautical and astronautical engineering with the specific area under consideration announced.

### 695 Senior Seminar U 1

(790) A. 1 cl.

Prereq.: Aero-Astro. E. 5th yr. standing.

### 710 Aeronautical Laboratory U 4

(713) A. 2 cl., 2 3-hr. labs.

Prereq.: Aero. Astro. E. 5th yr. standing.

Laboratory demonstrations and experiments in aerodynamics, aeroelasticity, propulsion, and structures of flight vehicles.

### 711 Advanced Aeronautical Laboratory U G 2-4

(714) W. 4-8 lab. hrs.

Prereq.: Permission of department, 710 or equiv.

The solution of problems in aero-space engineering by experimental methods.

**712 Advanced Aeronautical Laboratory** U G 2-4  
 (715) Sp. 4-8 lab. hrs.  
 Prereq.: Permission of department, 710 or equiv.  
 Continuation of 711.

**715 Preliminary Design of Flight Vehicles** U 4  
 (740) Sp. 2 cl., 2 3-hr. labs.  
 Prereq.: Aero-Astro. E. 5th yr. standing.

**720 Stability and Control of Flight Vehicles** U G 4  
 (725) W. 4 cl.  
 Prereq.: 620.  
 Modern methods of system response analysis, root-locus analysis, Liapunov stability analysis.

**725 Analytical Dynamics of Astronautics I** U G 4  
 (787) W. 4 cl.  
 Prereq.: 606 or equiv.  
 Satellite orbit analysis, multi-staging of rockets.

**726 Analytical Dynamics of Astronautics II** U G 4  
 (788) Sp. 4 cl.  
 Prereq.: 725 or equiv.  
 Perturbations of satellite orbits.

**740 Thermal Stresses in Aircraft and Missiles** U G 4  
 (746) Sp. 4 cl.  
 Prereq.: 640.  
 Theory of thermal stresses, aerodynamic heating and structural effects due to heating.

**745 Aeroelasticity** U G 4  
 (754) A. 4 cl.  
 Prereq.: 660, 640.  
 Dynamic loads analysis of elastic flight vehicles subjected to unsteady airloads.

**746 Aeroelasticity** U G 4  
 (755) W. 4 cl.  
 Prereq.: 745.  
 Continuation of 745.

**750 Principles of Flight Vehicle Propulsion** U G 4  
 (763) A. 4 cl.  
 Prereq.: 661.  
 Functional characteristics and performance of rocket, ramjet, turbojet, turbo-propeller, pulse jet, and hybrid engines.

**751 Advanced Propulsion** U G 4  
 (764) W. 4 cl.  
 Prereq.: 750.  
 Problems of chemical energy sources for space propulsion, nuclear and electric propulsion systems.

**760 Advanced Compressible Flow I** U G 4  
 (772) W. 4 cl.  
 Prereq.: 661.  
 Two-dimensional supersonic flow theories.

**761 Advanced Compressible Flow II** U G 4  
 (773) Sp. 4 cl.  
 Prereq.: 760 and 770.  
 Three-dimensional supersonic flow theories, wingbody interference, control surface theory.

**770 Aerodynamics of Viscous Fluids** U G 4  
 (775) A. 4 cl.  
 Prereq.: 661.  
 The elements of laminar and turbulent boundary layers in incompressible flows.

**771 Aerodynamic Heating** U G 4  
 (778) Sp. 4 cl.  
 Prereq.: 770.  
 The analysis of laminar and turbulent boundary layer heat transfer in high speed flow.

**775 Hypersonic Flows** U G 4  
 (779) W. 4 cl.  
 Prereq.: 760 and 770.

**776 Hypersonic Flows** U G 4  
 (789) Sp. 4 cl.  
 Prereq.: 775.  
 Continuation of 775.

**805 Aerodynamics of Chemically Reacting Fluids** G 3  
 A. 3 cl.  
 Prereq.: 661 or equiv.

The aerodynamics of one-dimensional compressible flow with chemical reactions and wave propagation. *Edse.*

**810 Flight Vehicle Performance Analysis** G 3  
 (823) A, W, Sp. 3 cl.  
 Prereq.: 750, 761.  
 Analysis of flight vehicle performance in planetary atmospheres. *Lee, Nerem, and Von Eschen.*

**820 Advanced Flight Vehicle Stability and Control** G 3  
 (821) A, W, Sp. 3 cl.  
 Prereq.: 726.

Advanced studies in: stability of systems, non-linear systems, Liapunov method, dynamics in extra-terrestrial atmospheres, new control methods. *Mallett.*

**825 Advanced Analytical Dynamics of Astronautics** G 3  
 (822) A, W, Sp. 3 cl.  
 Prereq.: 726.

Advanced study in transfer orbits, satellite rendezvous, satellite attitude control, lunar and planetary missions. *Mallett.*

**840 Inelastic Structural Analysis** G 3  
 (841) A, W, Sp. 3 cl.  
 Prereq.: 640.

The inelastic analysis of space structures and structural components subjected to thermal, uniaxial, and biaxial loads. *Gatewood.*



- 841 Advanced Aeroelasticity G 3**  
 (842) A, W, Sp. 3 cl.  
 Prereq.: 746.

The effects of compressibility, three-dimensional flow, and structural heating on the static and dynamic response of elastic and inelastic flight vehicles subjected to steady and unsteady loads. *Gatewood*.

- 842 Advanced Structures for Flight Vehicles G 3**  
 (843) A, W, Sp. 3 cl.  
 Prereq.: 640.

Advanced analysis and design of aircraft structures and of structural components including thermal, inelastic, and buckling effects. *Gatewood*.

- 850 Non-Equilibrium Flow Dynamics G 3**  
 (861) A, W, Sp. 3 cl.  
 Prereq.: 603.

Relaxation, dissociation, waves (sound, shock) nozzle flow and design collisional energy transfer in gases. *Edse and Li*.

- 851 Advanced Propulsion Problems G 3**  
 (862) A, W, Sp. 3 cl.  
 Prereq.: 751.

Combustion instability, free radicals as energy source, space propulsion problems, noise of exhaust jets, energy conversion, solid propellants, heat transfer in rocket engines, cascade theory. *Edse*.

- 852 Supersonic Combustion G 3**  
 (863) A, W, Sp. 3 cl.  
 Prereq.: 750.

Hypersonic ramjet, hybrid engines, detonation waves, flame propagation, flame temperature, combustion kinetics. *Edse*.

- 860 Advanced High Speed Aerodynamics G 3**  
 (871) A, W, Sp. 3 cl.  
 Prereq.: 761, 776.

Supersonic and hypersonic aerodynamics, unsteady aerodynamics, transonic flows, transient wave phenomena, non-equilibrium gas dynamics. *Burggraf, Lee, Li, Nerem, and Von Eschen*.

- 861 Advanced Boundary Layer and Heat Transfer Theory G 3**  
 (872) A, W, Sp. 3 cl.  
 Prereq.: 771.

Chemically reacting boundary layers, mass transfer and ablation, radiation gas dynamics, separated flow phenomena, interactions between viscous and inviscid flows. *Burggraf, Lee, Li, and Nerem*.

- 862 Modern Analytical Methods in Fluid Mechanics G 3**  
 (873) A, W, Sp. 3 cl.  
 Prereq.: 760, 770.

Emphasis on the solution of singular perturbation problems as they arise in fluid mechanics; methods illustrated by examples of low- and high-speed flows of viscous and inviscid fluids. *Burggraf and Li*.

- 865\* Advanced Viscous Flow Theory G 3**  
 (776) Sp. 3 cl.  
 Prereq.: 770 or equiv.

Advanced topics in three-dimensional viscous flow. *Burggraf, Lee and Li*.

- 868†\* Molecular Theory of Gas Flows G 3**  
 (777) Sp. 3 cl.  
 Prereq.: 505, 770 or equiv.

Molecular theory of flow from the viewpoint of the Boltzmann equation. *Burggraf, Edse, and Lee*.

- 870 Aerodynamics of Plasmas G 3**  
 (831) A, W, Sp. 3 cl.  
 Prereq.: 603, Elec. E. 810 or equiv.

The governing equations of magnetofluidmechanics, similarity laws, and applications to continuum plasma problems of interest in aerodynamics. *Petrie*.

- 871 Aerokinetics of Plasmas G 3**  
 (832) A, W, Sp. 3 cl.  
 Prereq.: 600.

Wave propagation and magnetohydrodynamic shock waves in multi-component plasmas. *Petrie*.

- 872 Aerodynamics of Plasmas G 3**  
 (833) A, W, Sp. 3 cl.  
 Prereq.: 870 or 871.

*Petrie*.

- 880 Seminar G 1**  
 (881) Su, A, W, Sp. 1 2-hr. cl.

Repeatable. Should be scheduled at least once by candidates for the M.S. degree and at least three times by candidates for Ph.D. degrees.

- 889 Advanced Topics in Aeronautical and Astronautical Engineering G 2-5**  
 Su, A, W, Sp.  
 Prereq.: Permission of department.  
 Repeatable to a maximum of 15 cr. hrs.

- 999 Research in Aeronautical and Astronautical Engineering G Arr.**  
 (950) Su, A, W, Sp.  
 Research for thesis or dissertation purposes only.

## Agricultural Economics

Office: 103 Agricultural Administration Building, 2120 Yffle Road

Professors Boyne (Chairman), Bailey, R. L. Baker, R. H. Baker, Barr, Baumer, Cravens, Dambach, Dougan, Hadley, Mangus, McCormick, Milner, Mitchell, Oyler, Sharp, Shaudys, Sherman, Sitterley, Smith, Stout, Tompkin, Wayt, and Williams; Associate Professors Adams, Bottom, Ezzell, Himes, Ingraham, Jacobson, Jones, Marion, McDonald, Phillips, Reeser, Steele, Walker, and Welsh; Assistant Professors Bowen, Darrow, Hahn, Harter, J. E. Moore, Rask, Thomas, Vandemark, and Whisler; Instructors Miskell, Pugh, Tucker, and Watkins.

- 100 Economic Development of Food and Agriculture U 5**  
 (420) A, W, Sp. 5 cl.

An introduction to agricultural economics; a study of the major economic trends such as production, consumption, marketing, prices and the economics underlying these trends. *McCormick, Himes, Jones, and Thomas*.

**199 Agricultural Economics in a Changing World** U 5  
Sp. 5 cl.

*Prereq.: Membership in a College honors program or eligibility for membership with permission of instructor.*

*Not open to students with credit for 100.*

A study of basic economic principles as applied to agricultural production, consumption, and marketing problems in a changing world. *Himes, Jones, and McCormick.*

**GENERAL PREREQUISITES FOR COURSES  
NUMBERED 300 AND 400**

Unless otherwise indicated, the prerequisites for 300 and 400 courses are 90 cr. hrs. in collegiate courses, exclusive of ROTC and Phys. Ed.; or specified course(s) numbered 100-399.

**410 Farm Management** U 5  
(502) A, W, Sp. 5 cl.

*Prereq.: 100 and Econ. 201 or 402.*

Organization and operation of farm business; economic and management principles involved in decision making, farm planning, enterprise selection, financing, and tenure. *Baker, Shaudys, Sitterley, Reeser, and Rask.*

**411 Farm Management for Developing Countries** U 5

Sp. 3 2-hr. lec.-lab. cls.

*Prereq.: 100, Econ. 201 or 402, and one course each in Agron. and Animal Sc.*

*Not open to students with credit for 410.*

Economics and management principles in decision making, planning, enterprise selection, organization, financing, and tenure for farming operations in developing countries. *Reeser and Rask.*

**412 Farm Records and Analysis** U 5  
(510) Su, W, Sp. 2 2-hr. cl.

*Prereq.: 100 and Econ. 201 or 402.*

Nature and need for farm business records and analysis and interpretation of essential records from farm manager viewpoint; their use in income tax reporting. *Baker, Shaudys, and Rask.*

**420 Marketing Farm Products** U 5  
(613) A, W, Sp. 5 cl.

*Prereq.: 100 and Econ. 201 or 402.*

Study of local wholesale, and retail marketing agencies and principles involved in the marketing of farm products. *Cravens, Hahn, Sherman, Stout, and Steele.*

**GENERAL PREREQUISITES FOR COURSES  
NUMBERED 500**

Unless otherwise indicated, the prerequisites for 500 courses are 15 cr. hrs. in courses in the same discipline numbered 200 or higher, or 10 cr. hrs. in courses numbered 200 or higher in the same discipline, plus 10 cr. hrs. in courses numbered 200 or higher in specified allied disciplines; or baccalaureate degree.

**502 Prices of Farm Products** U G 3  
(612) W, Sp. 3 cl.

Characteristics of agricultural price, movement, measurement, seasonality, cycles, and forecasting, including analysis of price formation elasticity, parity, and other price statistics. *Himes.*

**516 Agricultural Finance** U 5  
(610) A, Sp. 5 cl. One Saturday and one overnight field trip.

*Prereq.: 410.*

Agricultural credit, facilities, procurement, extension, and management. *Bailey and Jones.*

**518 Farm Appraisal** U G 3  
(618) Sp. 3 cl., 3 3-hr. field trips during qtr.

*Prereq.: 410.*

Farm real estate appraisal with emphasis on methods, procedure and reporting; factors influencing land value and fluctuation in land prices. *Baker.*

**521 Poultry Marketing** U G 5  
(621) Sp. 5 cl.

*Prereq.: 420.*

*(Offered in cooperation with the Department of Poultry Sc.)*

Factors affecting supply and demand for poultry products; organization to achieve technical and economic efficiency within and among industry segments. *R. L. Baker.*

**522 Livestock Marketing** U G 3  
(608) W. 3 cl.

*Prereq.: 420.*

*(Offered in cooperation with the Department of Animal Sc.)*

Selling methods, basis of sale, agencies involved, organization of markets, transportation, financing, marketing costs, prices, when to market, grade differentials, government regulation will be studied. *Stout.*

**523 Grain Marketing** U G 3  
(633) Su. (1st term). A. 3 cl.

*Prereq.: 420.*

Principles and practices involved in grain and feed marketing and the theory of grain pricing; economics grain marketing. *Sharp and Milner.*

**526 Marketing Dairy Products** U G 3  
(626) W. 3 cl.

*Prereq.: 420.*

*Offered in cooperation with the Department of Dairy Sc.)*

A study of the principles of assembling, transporting, selling, pricing, distribution, marketing costs, and margin for dairy products. *Hahn.*

**528 Marketing Fruits and Vegetables** U G 3

(628) Sp. 3 cl. One 2-day field trip.

*Prereq.: 420.*

Principles involved in the marketing of fruits and vegetables and the agencies concerned. *Cravens.*

**530 Agricultural Policy** U G 5  
(605) Su. (1st term). A, W. 5 cl.

*Not open to Juniors.*

Characteristics and problems of agriculture; description and analysis of programs and policies designed to assist agriculture and alternative proposals for the future. *McCormick and Williams.*

**531 Land Economics** U G 3  
(615) W, Sp. 3 cl.

Land resources and requirements; economic principles involved in land use; major land use problems; ways of achieving better land use; public's interest in land policy. *Wayt and Reeser.*

**532 Foreign Agricultural Development** U G 3  
(650) A, Sp. 3 cl.

Analysis of agricultural organization, production and marketing in foreign countries; foreign agricultural policies and international competition; appraisal of foreign technical assistance programs in agriculture. *Adams.*



**534 Food Economics U G 3**  
(616) *Sp. 3 cl.*  
Economic aspects of the production, distribution, and consumption of food. *Sherman.*

**539 U.S. Agricultural Price and Income Policy U G 5**  
*Sp. 5 cl.*  
*Prereq.: Jr. standing and membership in a College honors program or eligibility for membership with permission of instructor.*  
*Not open to students with credit for 530.*

A description, analysis and evaluation of United States agricultural price and income programs past, present and proposals for the future. *McCormick.*

**540 Business Management in Agricultural Marketing U G 5**  
(614) *A, Sp. 5 cl.*  
*Prereq.: 420.*

A detailed study of representative agricultural marketing agencies including their problems of administration, employees, financial statements, selling, purchasing, and warehousing. *Ingraham.*

**541 Cooperation in Agriculture U G 5**  
(603) *A, Sp. 5 cl.*  
*Prereq.: 420.*

Basic principles of cooperatives including types of organizations, legal aspects, membership relations, financing, organizational and intercooperative problems, and distribution of savings. *Ingraham.*

**593 Individual Studies U 2-5**  
(701) *Su, A, W, Sp.*  
*Repeatable to a maximum of 8 cr. hrs.*

Planning, conducting, and reporting a special problem in Agricultural Economics to meet the needs of the student.

**594 Special Group Studies U 1**  
(701) *Su. (1st term). A, W, Sp.*  
*Repeatable to a maximum of 2 cr. hrs.*

Reporting of selected topics in Agricultural Economics to further acquaint the student with current conditions.

#### GENERAL PREREQUISITES FOR COURSES NUMBERED 600

Unless otherwise indicated, the prerequisites for 600 courses are 15 cr. hrs. in courses in the same discipline numbered 300 or higher, or 10 cr. hrs. in courses numbered 300 or higher in the same discipline, plus 10 cr. hrs. in courses numbered 300 or higher in specified allied disciplines.

**610 Farm Organization U G 5**  
(602) *A. 4 cl., 1 2-hr. lab. and one field trip during qtr.*  
*Prereq.: 410, 412, Animal Sc. 200 and Agron. 411 or 412.*

Detailed application of production economics, management principles and decision making techniques to the organization, operation, and administration of farms; farm plans are developed. *Shaudys and Sitterley.*

**620 Market Organization in Agricultural Industries U G 4**  
(713) *Sp. 4 cl.*  
*Prereq.: 420, 541 and 521 or 522 or 523 or 526 or 528.*

Analysis of agricultural market structure, behavior, and performance; interpretation of recent changes in agricultural market structure. *Baumer.*

**632 Economic Techniques for Foreign Agricultural Development U G 3**  
*W. 3 cl.*  
*Prereq.: 532.*

The role of agriculture in economic development, characteristics of traditional agriculture, and the techniques used to modernize agriculture. *Adams.*

**633 Economic Development of Latin American Agriculture U G 3**  
*Sp. 3 cl.*

Analysis of agricultural land, labor, and capital utilization in Latin America; current techniques in land reform, credit, farm organizations, and marketing. *Adams.*

**680 Natural Resources Problems, Programs, and Policies U G 4**  
(697) *W. 2 2-hr. cl.*  
*Prereq.: Conserv. 201 and 202.*

An analytical study of contemporary and future problems of natural resources conservation and the programs and policies related to their solution. *Dambach.*

**695 Seminar in Agricultural Business Management U G 3**  
*A. 3 cl.*

Application of business management concepts to agriculture. *Ingraham.*

#### GENERAL PREREQUISITES FOR COURSES NUMBERED 700

Unless otherwise indicated, the prerequisites for 700 courses are 15 cr. hrs. in courses in the same discipline numbered 400 or higher, plus additional specified course(s) numbered 600 or higher.

**716 Agricultural Finance U G 3**  
*Sp. 3 cl.*  
*Prereq.: 516 and Bus. Org. 620.*

Analysis of capital budgeting and cash flow techniques as related to agricultural finance; evaluation of selected procedures for estimating the repayment capacity. *Bailey and Jones.*

**740 Food Distribution U G 4**  
(711) *Sp. 4 cl.*  
*Prereq.: 420 and 540.*

Competitive characteristics and trends in food distribution; competitive strategy and management problems in food retailing. *Marion.*

#### GENERAL PREREQUISITES FOR COURSES NUMBERED 800 AND 900

Unless otherwise indicated, the prerequisites for 800 and 900 courses are 30 cr. hrs. in courses in the same discipline, or 20 cr. hrs. in the same discipline, plus 25 cr. hrs. in specified allied disciplines.

**800 Research Methods in Agricultural Economics G 3**  
(811) *A, W. 3 cl.*  
*Prereq.: Econ. 805, 5 cr. hrs. Math., 4 cr. hrs. statistics.*

Principles of scientific method in agricultural economic investigations. *Sherman, Williams, and Walker.*

**801 Seminar in Problems in Agricultural Economics Statistics G 3**  
(9001) *Sp. 3 cl.*  
*Prereq.: Econ. 641.*

Application of statistics to problems in agricultural economics. *Walker.*

**802 Quantitative Methods in Agricultural Economics G 3**  
*W. 3 cl.*

*Prereq.: 800, Econ. 641 and differential calculus.*

Applications of analytical models to problems in Agricultural Economics research. *Walker.*

**803 Seminar in Linear Programming G 2**  
*Sp. 2 cl.*

*Prereq.: 800.*

Application of linear programming to agriculture. *R. H. Baker.*

**804 Seminar in Agricultural Price Analysis G 3**  
*Sp. 3 cl.*

*Prereq.: 800.*

Intensive consideration given to theory and analysis of agricultural prices. *Himes.*

**805 Economics of Agricultural Production G 3**

(820) *A, Sp. 3 cl.*

*Prereq.: Econ. 805, 5 cr. hrs. Math., 4 cr. hrs. statistics.*

A critical consideration of economic principles as they apply to production problems in agriculture. *Williams and Walker.*

**806 Economics of Agricultural Production G 3**

(821) *Sp. 3 cl.*

*Prereq.: 805, Econ. 808, 809, and Math. 151 or equiv.*

A further consideration of economic principles as they apply to production problems in agriculture. *Williams, Walker, and Himes.*

**807 Seminar in Agricultural Economic Theory G 2-4**

(900B) *A.*

*Prereq.: 800, 805 and permission of instructor.*

*Repeatable to a maximum of 8 cr. hrs.*

**810 Farm Organization and Resource Management G 3**

(830) *W. 3 cl.*

*Prereq.: 610.*

This course is designed to integrate resource use and the human factor under dynamic conditions of risk and uncertainty with a goal of economic progress. *Shaudys and Sitterley.*

**811 Seminar in Farm Organization and Management G 2-4**

*W.*

Application of micro-theory to farm organization and management.

**816 Seminar in Agricultural Finance G 2-4**  
*A.*

*Repeatable to a maximum of 8 cr. hrs.*

Intensive consideration is given to current theories and future problems in agricultural finance. *Bailey and Jones.*

**820 Agricultural Marketing G 3**  
*(840) W. 3 cl.*

*Prereq.: 620, Econ. 805 and 806.*

Study of the major problems in agricultural marketing and relevant research findings. *Sharp, Cravens, Hahn, Stout, and Steele.*

**821 Seminar in Agricultural Marketing G 2-4**  
*W.*

*Repeatable to a maximum of 8 cr. hrs.*

Critical analysis of major problems in agricultural marketing.

**830 Agricultural Policy G 4**  
*(860) A. 4 cl.*

*Prereq.: 420, 530, Econ. 805 and 806.*

Examination of values of American society concerning agriculture, reasons for these values, and alternatives for achieving various goals for U.S. agriculture. *McCormick and Williams.*

**831 Land Economics G 3**

(850) *Sp. 3 cl.*

*Prereq.: 531, 805.*

Examination of current problems in land resources use, allocation, conservation, and control. *Wayt and Reeser.*

**832 Seminar in Economic Development of Foreign Agriculture G 2-4**

(900J) *Sp.*

*Prereq.: 632*

*Repeatable to a maximum of 8 cr. hrs.*

Characteristic problems of developing countries, identification and analysis of limiting factors in underdevelopment, and techniques for stimulating economic development through growth in agriculture. *Adams.*

**833 Seminar in Land Tenure, Agrarian Reform and Agricultural Development G 2-4**

(900D) *A.*

*Repeatable to a maximum of 8 cr. hrs.*

Evaluation of land reform, agrarian reform and land tenure systems; emphasis on parcelization, colonization, parcel consolidation, and taxation.

**834 Seminar in Food Economics G 2-4**  
*(900D) A.*

An examination of the economic relationship of food production to population and region of the world and areas within countries. *Sherman.*

**897 Interdepartmental Seminar in Natural Resources G 1**

*A, W, Sp.*

*(See under Interdepartmental Seminars)*

**899 Interdepartmental Seminars G 1-5**  
*A, W, Sp.*

*(See under Interdepartmental Seminars.)*



**993 Individual Studies G 2-5**

(701) *Su, A, W, Sp.*

*Repeatable to a maximum of 10 cr. hrs.*

Planning, conducting, and reporting a special problem in agricultural economics fitting the needs of the student, under the guidance of an instructor.

**995 Seminar G 2 or 4**

(900) *A, W, Sp.*

*Repeatable to a maximum of 10 cr. hrs.*

**999 Research in Agricultural Economics G Arr.**

(950) *Su, A, W, Sp.*

Research for thesis or dissertation purposes only.

**380.02 Cooperative Extension**

*Su, A, W, Sp.*

*Jenkins.*

**380.03 Specially Programmed Field Work**

*Su, A, W, Sp.*

*Wilson.*

**420 Extension Program Development U 3**

(526) *Sp. 3 cl.*

*Prereq.: 200.*

Principles and procedures in developing extension programs in agriculture and home economics, with emphasis on program determination, teaching methods, and relationships with other groups. *Cunningham.*

**GENERAL PREREQUISITES FOR COURSES  
NUMBERED 500**

Unless otherwise indicated, the prerequisites for 500 courses are 15 cr. hrs. in courses in the same discipline numbered 200 or higher, or 10 cr. hrs. in courses numbered 200 or higher in the same discipline, plus 10 cr. hrs. in courses numbered 200 or higher in specified allied disciplines; or baccalaureate degree.

**581 Student Teaching in Agriculture U 5**

(504) *A, W, Sp.*

*Prereq.: 230 and completion of departmental requirements for admission to the professional program; concur.: 582, 583.*

Supervised participation in the professional responsibilities of the teacher in agriculture. *Wilson and Jenkins.*

**582 Student Teaching in Agriculture U 5**

(505) *A, W, Sp.*

*Concur.: 581 and 583.*

*See 581 for description and requirements.*

**583 Student Teaching in Agriculture U 5**

(506) *A, W, Sp.*

*Concur.: 581 and 582.*

*See 581 for description and requirements.*

**GENERAL PREREQUISITES FOR COURSES  
NUMBERED 600**

Unless otherwise indicated, the prerequisites for 600 courses are 15 cr. hrs. in courses in the same discipline numbered 300 or higher, or 10 cr. hrs. in courses numbered 300 or higher in the same discipline; plus 10 cr. hrs. in courses numbered 300 or higher in specified allied disciplines.

**621 Curriculum Development U G 3**

(707) *Su. (1st term). 3 2-hr. cl.*

*Prereq.: 581, 582, and 583.*

Principles and practices used in developing courses of study in agriculture for high school and post-high school programs. *Gudger.*

**622 Continuing Education in Agriculture U G 3**

(715) *A. 1 3-hr. cl.*

*Prereq.: 581, 582 and 583.*

Principles and practices involved in developing vocational and technical programs in agriculture for out-of-school youths and adults. *Bender and Wolf.*

**631 Methods in Teaching Agriculture U G 3**

(703) *Su. (1st term). W. 2 1½-hr. cl.*

*Prereq.: 581, 582 and 583.*

## Agricultural Education

Office: 208 Agricultural Administration Building, 2120 Fyffe Road

Professors Bender (Chairman), Johnson, Kirby, R. McCormick, Ritchie, D. B. Robinson, Taylor, Wolf, Wood, and Woodin; Associate Professors Boucher, Cunningham, Guiler, Hensel, and Wilson; Assistant Professors Jenkins, T. R. Robinson, Ruble, Starling, and White; Instructors Pulse, Waliser, and Young.

**GENERAL PREREQUISITES FOR COURSES  
NUMBERED 200**

Unless otherwise indicated, the prerequisites for 200 courses are 45 cr. hrs. in collegiate courses, exclusive of ROTC and Phys. Ed.; or specified course(s) numbered 100-199.

**200 Introduction to Agricultural Education U 3**

(456) *A, W, Sp. 3 cl.*

The importance and purpose of education in agriculture with emphasis upon nature of programs, opportunities available, and qualifications of personnel. *Boucher.*

**230 Methods in Teaching Vocational Agriculture U 5**

(501) *A, W, Sp. 4 cl., 4 lab. hrs.*

*Prereq.: 200.*

The learning process and its application to teaching vocational agriculture with laboratory study in selected schools. *Wolf.*

**GENERAL PREREQUISITES FOR COURSES  
NUMBERED 300 AND 400**

Unless otherwise indicated, the prerequisites for 300 and 400 courses are 90 cr. hrs. in collegiate courses, exclusive of ROTC and Phys. Ed.; or specified course(s) numbered 100-399.

**380 Agricultural Education Experience U 2 or 3**

(550) *Prereq.: 200.*

*Repeatable to a maximum of 10 cr. hrs.*

Supervised field experience in:

380.01 Teaching of Agriculture

*A (During Sept.), W, Sp.*

*Wilson.*

Theory, principles and procedures associated with effective instruction in agriculture at the secondary school and college level. *Bender*.

#### 640 Teaching Materials for Agricultural Education U G 3

(611) Sp. 1 3-hr. cl.  
Prereq.: 581, 582 and 583.

Theory and practice in developing and utilizing teaching materials in agricultural education. *Boucher and Guiler*.

#### 641 Occupational Experience in Agriculture U G 3

(705) A. 1 3-hr. cl.  
Prereq.: 581, 582 and 583.

Principles and procedures used by teachers in selecting, planning, conducting, and evaluating occupational experience programs for students in agriculture. *Wolf and Woodin*.

#### 642 Youth Organizations in Agriculture U G 3

(712) Sp. 1 3-hr. cl.  
Prereq.: 581, 582 and 583.

An analysis of the relationship of youth organizations to educational programs for youth, with emphasis upon planning and conducting FFA and 4-H Club programs. *Bender and Boucher*.

#### 684 Internship in Agricultural Education U G 3 or 5

(624) A, W, Sp.  
(625) Prereq.: 581, 582, and 583.  
(626) Repeatable to a maximum of 10 cr. hrs.

Guided participation in planning, administering, conducting, and evaluating programs in vocational agriculture, agricultural extension, or in other fields of vocational education to further enhance professional competency.

#### 693 Individual Studies U G 2 or 3

(701) Su, A, W, Sp.

Planning, conducting, and reporting a special study in agricultural education appropriate to the needs of the student.

#### GENERAL PREREQUISITES FOR COURSES NUMBERED 700

Unless otherwise indicated, the prerequisites for 700 courses are 15 cr. hrs. in courses in the same discipline numbered 400 or higher, plus additional specified course(s) numbered 600 or higher.

#### 743 Practicum in Teaching Agricultural Mechanics U G 3

(708) W. 1 4-hr. cl.  
Prereq.: 621, 631 or 684.

Selection and use of subject matter, resources, and methods of teaching agricultural mechanics. *Johnson*.

#### 744 Practicum in Teaching Farm Business Planning U G 3

(709) A, W. 1 3-hr. cl.  
Prereq.: 621, 631 or 684.

Selection and use of subject matter, resources, and methods of teaching farm business planning. *Starling*.

#### 770 Evaluation in Agricultural Education U G 3

(797) Sp. 1 3-hr. cl.  
Prereq.: 621, 631 or 684.

Principles and procedures of evaluation used in developing programs of agricultural education. *Wilson and Woodin*.

#### 790 Workshops in Agricultural Education U G 4

(799) Full time of student required for 3 wks.; no other courses concur.

Prereq.: Teaching or extension experience.

Intensive study of selected areas of agricultural education with emphasis on the application of principles and methods in attaining desired objectives.

##### 790.01 Program Planning

Su. (1st term), W.

##### 790.02 Teacher Education

Su.

##### 790.03 Administration and Supervision

Su.

##### 790.04 Research and Development

#### 794 Special Group Studies U G 3 or 5

A, W, Sp. 1 3-hr. cl.

Prereq.: Teaching or extension experience.

Repeatable to a maximum of 10 cr. hrs.

An intensive study of a selected area in agricultural education appropriate to the needs of the group not provided in other courses.

#### 795 Seminar U G 1-3

(810) Su, A, W, Sp. 1- or 2-hr. cl.

Prereq.: Permission of instructor.

Investigation and analysis of current problems and issues in agricultural education.

#### GENERAL PREREQUISITES FOR COURSES NUMBERED 800 AND 900

Unless otherwise indicated, the prerequisites for 800 and 900 courses are 30 cr. hrs. in courses in the same discipline, or 20 cr. hrs in the same discipline, plus 25 cr. hrs. in specified allied disciplines.

#### 810 Principles of Vocational-Technical Education G 3

A. 1 3-hr. cl.

Prereq.: Professional experience in vocational education.

An analysis of evolving concepts of vocational and technical education with emphasis upon principles underlying organization and practice. *Woodin*.

#### 811 Administration and Supervision in Agricultural Education G 3

(804) A, Sp. 1 3-hr. cl.

Prereq.: Experience in Agr. Ed.

Principles in developing and administering programs of agricultural education with attention to federal-state-local relationships, in-service education, and supervisory procedures. *R. McCormick and Taylor*.

#### 812 Teacher Education for Agriculture G 3

(806) Su. (1st term). 5 cl.

Prereq.: Experience in Agr. Ed.



Principles and methods of teacher education in agriculture including selection and guidance of students, curriculum, field experience, placement, in-service education, and research. *Wilson*.

**823 Program Planning and Development G 3**

(801) *Su (1st term), W. 1 3-hr. cl.*

*Prereq.: Experience in Agr. Ed.*

Principles, theory, and practice in developing state and local programs of agricultural education. *R. McCormick and Taylor*.

**885 Research Methods in Agricultural Education G 3**

(850) *Su (1st term), 5 cl.; W. 1 3-hr. cl.*

*Prereq.: 6 cr. hrs. graduate courses.*

Principles and techniques appropriate for planning, designing, conducting, and reporting research. *Woodin*.

**889 Advanced Studies G 3**

(895) *A, W, Sp.*

*Prereq.: 885.*

Individual field study in partial fulfillment of needs for research experience.

**899 Interdepartmental Seminar G 2 or 3**

*A, W, Sp. 1 or 2 cl.*

Investigation and analysis of current problems and issues in cooperation with other appropriate departments.

**999 Research in Agricultural Education G Arr.**

(950) *Su, A, W, Sp.*

Research for thesis or dissertation purposes only.

**221 Agricultural Materials Handling Systems U 3**

(528) *W. 2 cl., 2 lab. hrs.*

*Prereq.: 230.*

Principles, functional analysis and design of agricultural materials handling systems from harvest to utilization. *Barre*.

**230 Power for Agricultural Operations I U 3**

(513) *A, W, Sp. 2 cl., 2 lab. hrs.*

*Prereq.: Math. 116 or 150.*

A study of power in agriculture with primary emphasis upon power needs for field operations, characteristics of available power sources, selection, and use of power units. *Huber*.

**231 Power for Agricultural Operations II U 3**

(538) *W. 2 cl., 2 lab. hrs.*

*Prereq.: 230.*

An analysis of the functional requirements of energy needs of the farmstead, characteristics of available power sources, and selection of economic power units, including electrical power. *Harkness*.

**240 Teaching of Agricultural Construction and Maintenance U 3**

(504) *A, W, Sp. 2 cl., 6 lab. hrs.*

*Prereq. or concur.: Agr. Ed. 230.*

Principles and methods of teaching selection, use, and care of hand and power tools, materials for wood and metal construction based upon farm needs. *C. Johnson*.

**250 Machines for Agricultural Operations U 3**

(525) *A, Sp. 2 cl., 2 lab. hrs.*

*Prereq.: 230 or permission of instructor.*

Analysis of field machine operations with emphasis on recognition and quantitative solution of problems in selection and use of machines for optimum economic performance. *Harkness*.

**270 Agricultural Drainage and Erosion Control U 3**

(527) *A, Sp. 2 cl., 3 lab. hrs.*

*Prereq.: Math. 116 or 150, Agron. 240.*

Use and application of surveying instruments, serial and topographic maps, rainfall and runoff, and engineering problems of soil and water management on farms. *Schwab and Taiganides*.

**GENERAL PREREQUISITES FOR COURSES  
NUMBERED 200**

Unless otherwise indicated, the prerequisites for 200 courses are 45 cr. hrs. in collegiate courses, exclusive of ROTC and Phys. Ed.; or specified course(s) numbered 100-199.

**220 Buildings and Equipment for Farmstead Operations U 3**

(522) *A. 2 cl., 2 lab. hrs.*

*Prereq.: Math. 116 or 150.*

Functional requirements and planning of buildings and facilities for livestock production and for conditioning and storage of crops; environmental control; building construction. *Herum*.

**GENERAL PREREQUISITES FOR COURSES  
NUMBERED 300 AND 400**

Unless otherwise indicated, the prerequisites for 300 and 400 courses are 90 cr. hrs. in collegiate courses, exclusive of ROTC and Phys. Ed.; or specified course(s) numbered 100-399.

**310 Fundamentals of Food Engineering U 5**

(510) *A. 3 cl., 2 2-hr. lab.*

*Prereq.: 10 cr. hrs. in Math., 10 cr. hrs. in Chem., and 5 cr. hrs. in Physics.*

Introduction to heat transfer, fluid flow, and thermodynamics in food processes. *Blaisdell*.

# Agricultural Engineering

Office: 105 Ives Hall, 2073 Neil Avenue

**Professors** Stewart (Chairman), Barre, Bickle, Bondurant, Harrold, C. E. Johnson, W. H. Johnson (Associate Chairman, Wooster), and Schwab; **Associate Professors** Brazee, Byg, Curry, Herum, Huber, Palmer, Reeve, Roller, and Taiganides; **Assistant Professors** Blaisdell, Gill, Hall, Hamdy, and Schnug; **Instructors** Belt, Fouss, Harkness, Henry, Hoover, Nolte, and Pfost.

- 403 Practical Experience** U 5  
(508) A.  
Prereq.: Permission of adviser.

Ten weeks of agricultural engineering work prior to fifth year. The occupation, work completed, and a written report shall be subject to approval by adviser.

- 411 Refrigeration Engineering in the Food Industry** U 5  
W. 3 cl., 2 2-hr. lab.  
Prereq.: 310.

Transient heat transfer, thermodynamics of refrigeration systems, applications of refrigeration in food processing. Blaisdell.

- 473 Engineering of Crop Growth Environment I** U 4  
(557) W. 4 cl.  
Prereq.: Agron. 671, Bot. 430, Math. 421.

Plant ecology, especially crop response to extreme of soil moisture; precipitation, infiltration, evapotranspiration, runoff, and probability of drought and excess moisture; soil classification. Taiganides.

- 474 Engineering of Crop Growth Environment II** U 4  
(567) Sp. 3 cl., 1 3-hr. lab.  
Prereq.: 473, concur. Civil E. 511.

Soil erosion principles and control; contouring, terracing, vegetation, tillage and hydraulic conveyance structures; earth dams and farm reservoirs; headwater reduction and flood routing. Taiganides.

#### GENERAL PREREQUISITES FOR COURSES NUMBERED 500

Unless otherwise indicated, the prerequisites for 500 courses are 15 cr. hrs. in courses in the same discipline numbered 200 or higher, or 10 cr. hrs. in courses numbered 200 or higher in the same discipline, plus 10 cr. hrs. in courses numbered 200 or higher in specified allied disciplines; or baccalaureate degree.

- 500 Farm and Home Safety** U G 1  
(600) Sp. 1 cl.

Causes of accidents; methods for conducting farm and home safety programs; for students interested in vocational agriculture, extension, and farm organization work.

- 533 Sources and Utilization of Energy in Agriculture** U G 5  
(655) W. 3 cl., 2 2-hr. labs.  
Prereq: Mech. E. 500; Elec. E. 500.

A study of sources of energy, principles of energy conversion and energy conversion systems of importance to agriculture. Huber.

- 551 Advanced Farm Power and Field Machinery** U G 3  
(605) Su. (1st term). 3 cl., 2 2-hr. lab.  
Prereq.: 10 cr. hrs. Agr. E., 8 cr. hrs. Agron., or baccalaureate degree.

An advanced study of harvesting machines and power units from the mechanical, operational, and economic standpoint; emphasis is given to the development of optimum harvest systems.

- 591 Workshop** U G 4  
(799) Su. (1st term). First three weeks—full time.  
Prereq.: 15 cr. hrs. Agr. E. and permission of instructor.

Principles, objectives, methods, and equipment in the organization and management of a program for teaching farm mechanics. Students will plan, present, and evaluate units of instruction.

a. Farm Mechanics. Johnson.

- 593 Individual Studies** U G 3-5  
(701) Su, A, W, Sp.  
Prereq.: Permission of instructor.

Advanced study of problems not included in regular courses of this department.

#### GENERAL PREREQUISITES FOR COURSES NUMBERED 600

Unless otherwise indicated, the prerequisites for 600 courses are 15 cr. hrs. in courses in the same discipline numbered 300 or higher, or 10 cr. hrs. in courses numbered 300 or higher in the same discipline, plus 10 cr. hrs. in courses numbered 300 or higher in specified allied disciplines.

- 611 Food Engineering Design and Control** U G 5  
Sp. 3 cl., 2 2-hr. lab.  
Prereq.: 310, 411 and Animal Sc. 650 or Dairy Tech. 632 or Home Ec. 615 or Hort. 441.

Integration of economic principles, food sciences and engineering in optimum design and control of processing systems. Blaisdell.

- 675 Engineering of Crop Growth Environment III** U G 5  
(677) A. 3 cl., 2 3-hr. labs.  
Prereq.: 474, Bot. 431.

Pumps and pumping; design of drainage channels, sub-surface drains, and irrigation systems; methods of irrigation; special soil problems and plant requirements; legal aspects. Schwab.

- 676 Engineering of Crop Growth Environment IV** U G 4  
(687) Sp. 3 cl., 1 2-hr. lab.  
Prereq.: 675, Biochem. 511.

Factors influencing plant growth and engineering methods of controlling growth factors through mechanical means; approach to functional design. Harkness.

- 681 Simulation in Agricultural Engineering** U G 5  
A. 3 cl., 2 2-hr. lab.  
Prereq.: Math. 255 and Elec. E. 520, or equiv.

Principles of analog and hybrid simulation developed and applied to engineering problems in agricultural systems. Hamdy.

- 693 Individual Studies** U G 3 or 5  
(702) Su, A, W, Sp.  
Prereq.: 15 cr. hrs. of 500 level or higher Agr. E. courses and permission of instructor.  
Repeatable to a maximum of 10 cr. hrs.

Work on problems that are not included in regular courses; practice in development, organization, solution, and report on problems of student's choosing.



GENERAL PREREQUISITES FOR COURSES  
NUMBERED 700

Unless otherwise indicated, the prerequisites for 700 courses are 15 cr. hrs. in courses in the same discipline numbered 400 or higher, plus additional specified course(s) numbered 600 or higher.

**723 Engineering of Agricultural Processes and Related Structures I U G 5**

(752) A. 5 cl.  
Prereq.: 533, concur. 753, Mech. E. 510, Animal Sc. 430.

Functional requirements and principles involved in housing animals and biological materials; analysis of physical-chemical factors and properties affecting energy exchanges with the environment. Barre.

**724 Engineering of Agricultural Processes and Related Structures II U G 5**

(762) W. 5 cl.  
Prereq.: 723, Elec. E. 580.

Analysis of processing and materials-handling subsystem functions in agriculture designed to provide greater yield from raw products and to reduce human labor. Herum.

**725 Engineering of Agricultural Processes and Related Structures III U G 4**

(772) Sp. 3 cl., 1 3-hr. lab.  
Prereq.: 724, Mech. E. 640.

Design of agricultural structures and interior environments to meet load requirements and to optimize recovery of animal and plant production. Barre.

**753 Functional Design of Harvesting Machines U G 4**

(765) A. 3 cl., 1 3-hr. lab.  
Prereq.: 726, Eng. Mech. 410, Mech. E. 550.

Harvesting machine functional requirements imposed by crop physical and biological characteristics, by desired condition of harvested material, and by the production system; approach to functional design. Huber.

**754 Engineering of Agricultural Machines U G 5**

(775) W. 3 cl., 2 2-hr. labs.  
Prereq.: 753, Indust. E. 401, Mech. E. 450.

Complete engineering development of machines for agricultural operations; introduction to experimental work, advanced work in analysis, functional and mechanical design, economic consideration.

**786 Engineering of Agricultural Systems U G 5**

(779) Sp. 3 cl., 2 2-hr. labs.  
Concur.: 725.

Integration of engineering and biological principles in agriculture to optimize complete operational production systems; application of relevant theory to present and future systems.

**794 Advanced Studies U G 3**

(798) A, Sp. 3 cl.  
Prereq.: 15 cr. hrs. of 600 level or higher Agr. E. courses and permission of instructor.  
Repeatable to a maximum of 9 cr. hrs.

Advanced subjects in agricultural engineering. Course content to be announced in previous quarter.

A. Farm Structures. Stewart.  
Sp. Power and machinery.

GENERAL PREREQUISITES FOR COURSES  
NUMBERED 800 AND 900

Unless otherwise indicated, the prerequisites for 800 and 900 courses are 30 cr. hrs. in courses in the same discipline, or 20 cr. hrs. in the same discipline, plus 25 cr. hrs. in specified allied disciplines.

**808\* Measurement in Agricultural Engineering G 3**

(880) Su. (2nd term). 3 cl.  
Prereq.: Math. 520, 557 and 704, Mech. E. 770, 771, or equiv.

Theory and principles involved in measurement and control of biophysical processes in agricultural engineering. Stewart.

**850 Seminar G 1**

(801) A, W, Sp. 1 cl.  
Repeatable to a maximum of 3 cr. hrs.

**857\* Soil Machine Dynamics in Plant Environment G 3**

(883) Sp. 3 cl.  
Prereq.: Agron. 671, Bot. 430, Civil E. 651, Eng. Mech. 711, Math. 551, Mech. E. 510, Physics 743, or equiv.

Mass and heat transfer in soil and dynamics of mechanical actions on soil in relation to plant environment and agricultural machine design and use.

**858\* Turbulent Diffusion of Aerosols G 5**

(885) A. 5 cl.  
Prereq.: Math. 704 and permission of instructor.

Phenomenological and statistical turbulent diffusion theories; cloud displacement and distortion; turbulent diffusion equations and tensions; fluid flow and turbulence effects; applications. Brazee.

**877\* Advanced Agricultural Drainage G 3**

(887) W. 3 cl.  
Prereq.: 675 and Math. 412.

Theory of agricultural drainage, both tile and surface methods; measurements of drainage and frequency analysis; hydrologic characteristics of drainage systems; drainage requirements of crops. Schwab.

**897 Interdepartmental Seminar in Natural Resources G 1**

(See under Interdepartmental Seminars.)

**999 Research G Arr.**

(950) Su, A, W, Sp.  
Research for thesis and dissertation purposes only.

## Agriculture Survey Courses

### 101 Agriculture College Orientation U 1

(401) Su, A, W, Sp. 1 cl.

*Not open to students with more than 45 cr. hrs. earned.*

Orientation to the University and College; exploration of curricula, opportunities and services.

#### GENERAL PREREQUISITES FOR COURSES NUMBERED 300 AND 400

Unless otherwise indicated, the prerequisites for 300 and 400 courses are 90 cr. hrs. in collegiate courses, exclusive of ROTC and Phys. Ed.; or specified course(s) numbered 100-399.

### 351 Agricultural Employment U 1

(501) A, W. 1 cl.

Introduction to opportunities in agriculture; discussions related to employment, interviews, selection and application for career positions.

### 590 Agriculture Honors Colloquium U 2

(502) W. 2 cl.

*Prereq.: Enrollment in Agriculture Honors Program.*

*Repeatable to a maximum of 4 cr. hrs.*

The relationships of technology, science, and economics in agriculture to society; discussions are led by faculty members or outside speakers.

## Agronomy

Offices: 108 Townshend Hall, 1885 Neil Avenue, 101 Horticulture and Forestry Building, 1827 Neil Avenue

**Professors** Volk (Chairman), Baver, Davis (Associate Chairman, Wooster), Dollinger, Gist, Himes, Hoff, Holowaychuk, Jones, McLean, Mederski, Musgrave, Parsons, Ray, Ryder, Saboe, Smith, Taylor, Triplett, Van Doren, Van Keuren, Yamazaki, and Yoder; **Associate Professors** Arscott, Bader, Bendixen, Clark, Findley, Franklin, Friday, Haghir, Heft, Linville, R. H. Miller, R. W. Miller, Niehaus, Schmidt, Shepherd, Shoemaker, Stroube, Sutton, and Wilding; **Assistant Professors** Bone, Everett, Hall, Heizer, Herr, Lafever, Moser, Schmidt, Vimmerstedt, and Waldron; **Instructors** Fausey, Katterheirich, and Wilson.

#### GENERAL PREREQUISITES FOR COURSES NUMBERED 200

Unless otherwise indicated, the prerequisites for 200 courses are 45 cr. hrs. in collegiate courses, exclusive of ROTC and Phys. Ed.; or specified course(s) numbered 100-199.

### 200 Plant Science in Agriculture U 5

A, W, Sp. 5 cl.

*Prereq.: Biol. 100 or Bot. 100.*

*Not open to students with credit for Agron. (403) or Hort. (402).*

*(Offered in cooperation with the Department of Hort. and Forest.)*

Study of environment and genetic factors that influence plant growth, and how man can alter these factors to produce plants which more adequately meet his needs.

### 240 Soil Science U 5

(501) Su, A, W, Sp. 3 cl., 2 2-hr. lab.

*Prereq.: Chem. 101 and 102, or 121 and 122, or equiv.*

Introduction to the genetic, physical, chemical, and biological properties influencing soil productivity; laboratory exercises include observation and quantitative determination of certain of these soil properties. *Himes.*

#### GENERAL PREREQUISITES FOR COURSES NUMBERED 300 AND 400

Unless otherwise indicated, the prerequisites for 300 and 400 courses are 90 cr. hrs. in collegiate courses, exclusive of ROTC and Phys. Ed.; or specified course(s) numbered 100-399.

### 411 Grain Crops U 4

(515) A, W. 3 cl., 1 2-hr. lab.

*Prereq.: 200 or junior standing.*

A study of the grain crops, their classification, geographic distribution, culture, varieties, improvement, seed production, harvesting, handling, recognition, grading, and utilization. *Ray.*

### 412 Forage Crops U 4

(520) Su, A, W, Sp. 3 cl., 1 2-hr. lab.

*Prereq.: 200 or junior standing.*

Principles underlying characteristics, tolerances, requirements, uses; production of forage plants for hay, pasture, silage, soilage, and cover.

### 413 Principles of Turfgrass Selection and Management U 4

(630) Sp. 4 cl.

*Prereq.: 200 or 240.*

Adaptation, identification, uses, growth characteristics, growth responses, and fundamental principles essential to the production of quality turf. *Miller.*

### 422 Weed Control U 4

(525) A, Sp. 3 cl., 1 2-hr. lab.

*Prereq.: 200.*

A study of weeds, their identification, reproduction, and methods of control; emphasis on various aspects of chemical control measures. *Herr.*

### 441 Soil Erosion and Its Control U 4

(604) A. 3 cl., 1 3-hr. lab.

*Prereq.: 240.*

A study of the mechanics of soil erosion and its control; field trips to observe erosion and conservation practices are included.

### 442 Soil Management U 3

(619) A. 3 cl.

*Prereq.: 240.*

An integrated study of fertility, tillage, erosion control, and water management in maintaining soil productivity. *Shoemaker.*

#### GENERAL PREREQUISITES FOR COURSES NUMBERED 500

Unless otherwise indicated, the prerequisites for 500 courses are 15 cr. hrs. in courses in the same discipline numbered 200 or higher, or 10 cr. hrs. in courses numbered 200 or higher in the same discipline, plus 10 cr. hrs. in courses numbered 200 or higher in specified allied disciplines; or baccalaureate degree.

### 510 Crop Production in Developing Countries U G 4

(600) W. 4 cl.

*Prereq.: 200, 240 or equiv.*



Fundamental studies of field and plantation crops in tropical and subtropical countries with emphasis on means and techniques for obtaining production increases. *Aracott.*

### 530 Field Crop Breeding U G 4

(614) W. 3 cl., 1 2-hr. lab.

Prereq.: 200 and 411 or 412, and Biol. 190 or equiv.

Principles of genetics and methods of plant breeding applied to the improvement of field crops and the ultimate development of superior varieties. *Smith.*

### 543 Tropical and Subtropical Soils U G 3

A. 3 cl.

Prereq.: 15 cr. hrs. of Agron., Hort., Geol., or equiv. at the 200 course level or above.

A study of the physical, chemical, and biological properties and the fertilization, physical, and water management of tropical and subtropical soils; crop adaptation, plantation, and subsistence farming. *Aracott.*

### 550 Pedology and Edaphology U G 5

(609) Sp. 3 cl., 1 4-hr. lab. and field trips.

Prereq.: 200, 240, and 442.

A comprehensive study of soil with respect to its components, morphology, and genesis and how morphology influences soil behavior especially as it pertains to Ohio conditions. *Hall.*

### 589 Field Work U G 5

Su. 3-week field trip.

Prereq.: Permission of instructor.

Repeatable to a maximum of 10 cr. hrs.

A field trip to the major crop, soil, and climatic regions east or west of the Mississippi River in the U.S., and to the major industries that utilize crops.

### 594 Special Group Studies U G 3 or 5

A, W, Sp.

Prereq.: Permission of instructor.

Repeatable to a maximum of 10 cr. hrs.

Selected topics in crop science and/or soil science will be discussed.

### 595 Undergraduate Seminar U 2

(599) A, W, Sp. 2 cl.

Prereq.: 15 cr. hrs. in Agron. and 3rd or 4th yr. standing in Agron.

Review and interpretation of research publications and study of functions of agronomic industries. *Moser, Aracott, and Himes.*

#### GENERAL PREREQUISITES FOR COURSES NUMBERED 600

Unless otherwise indicated, the prerequisites for 600 courses are 15 cr. hrs. in courses in the same discipline numbered 300 or higher, or 10 cr. hrs. in courses numbered 300 or higher in the same discipline, plus 10 cr. hrs. in courses numbered 300 or higher in specified allied disciplines.

### 602 Field Crop Ecology U G 3

(640) Sp. 3 cl.

Prereq.: 10 cr. hrs. of crops courses and 5 cr. hrs. of soils courses at the 300 level or higher.

A study of the relationship of crop plants to climate, soils, and other limiting factors of distribution, production, and quality. *Bendizen.*

### 612 Principles of Grassland Management U G 4

(620) Sp. 4 cl., 1 4-day field trip.

Plant-animal requirements and correlations in the maintenance, management, and utilization of meadows, pastures, and ranges.

### 621 Principles of Field Crop Management U G 3

(601) A, W. 3 cl.

Prereq.: Bot. 430 and 431, or equiv.

Principles of field crop management and their influence on cultural practices with emphasis on corn, soybeans, and wheat. *Moser.*

### 623 Principles of Turfgrass Management U G 4

Sp. 4 cl.

Prereq.: 413, Bot. 430 and 431.

A study of the relationship between basic factors influencing turfgrass growth and the practical execution of maintenance practices which affect the production of quality turf. *Miller.*

### 650\* Advanced Soil Classification Morphology and Genesis U G 5

W. 4 cl., 1 2-hr. lab., 3 1-day field trips.

Prereq.: 550, 10 cr. hrs. from the following: 442, 621, Bot. 620, Geol. 550.

Theory and principles of soil classification schemes emphasizing the 7th Approximation; classification and genesis of major soils of the world; methods to establish parent material homogeneity and indices of soil weathering. *Wilding.*

### 660 Soil Microbiology U G 5

(605) Sp. 3 cl., 2 2-hr. labs.

Prereq.: 441, Microbiol. 607, Chem. 231 or 532.

A study of the morphology and physiology of soil microorganisms and their biochemical transformations of inorganic and organic materials in relation to soil fertility. *Müller.*

### 670 Soil Fertility U G 3

(611) A. 3 cl.

Prereq.: 441.

A study of the factors affecting soil productivity and the practices needed in good soil management; fertilizer properties and practices are included. *Aracott.*

### 671 Soil Physics U G 5

(608) A. 3 cl., 2 2-hr. labs.

Prereq.: 441, Physics 231, 232 and 233, Math. 152.

A study of the physical makeup and properties of soil, including structure, thermal relationships, consistency, plasticity, water, and their relationships. *Taylor.*

### 672 Chemistry of Soils and Fertilizers U G 5

(712) W. 3 cl., 2 2-hr. labs.

Prereq.: 550, 670, Chem. 211 and 9 additional cr. hrs. in Agron. and/or Chem. at the 300 level or higher.

A study of the chemical properties of soils and fertilizers affecting plant growth and composition including modern laboratory analysis of soil, fertilizer, and plant tissue. *McLean.*

**693 Individual Studies U G 3 or 5**(701) *Su, A, W, Sp.**Prereq.: Permission of instructor.**Repeatable to a maximum of 10 cr. hrs.*

Students may select special agronomic problems, not included in regular courses and involving library, laboratory, or field studies.

**GENERAL PREREQUISITES FOR COURSES****NUMBERED 700**

Unless otherwise indicated, the prerequisites for 700 courses are 15 cr. hrs. in courses in the same discipline numbered 400 or higher, plus additional specified course(s) numbered 600 or higher.

**750\* Methods of Soil Mineralogical Investigations U G 4***Sp. 2 cl., 2 2-hr. labs.*

*Prereq.: 15 cr. hrs. selected from the following: 550, 671, 672, Geol. 602, Mineral. 621, 654, Chem. 521, 621, 676.*

Theory, interpretation, and application of mineralogical tools for soil matrices including X-ray diffraction, X-ray spectroscopy, microscopy, thin section and thermal techniques. *Wilding.*

**786 Radioactive Tracers in Plant and Soil Research U G 3***W. 1 cl., 2 3-hr. labs.**Prereq.: 672.*

Radiochemical principles and techniques used in soil and plant research; designed to prepare the student to conduct radio-tracer experiments. *Franklin.*

**GENERAL PREREQUISITES FOR COURSES****NUMBERED 800 AND 900**

Unless otherwise indicated, the prerequisites for 800 and 900 courses are 30 cr. hrs. in courses in the same discipline, or 20 cr. hrs. in the same discipline, plus 25 cr. hrs. in specified allied disciplines.

**822 Physiological and Biochemical Aspects of Herbicides G 5**(825) *W. 4 cl., 1 2-hr. lab.*

*Prereq.: Bot. 431, Biochem. 511, and Chem. 532, or equiv.*

Herbicide absorption, course, fate, and mode of action in plants; persistence and fate in soils. *Bendizen.*

**830\* Advanced Field Crop Breeding G 4**(814) *W. 3 cl., 1 2-hr. lab.*

*Prereq.: 530, Biol. 650, and 16 additional cr. hrs. in Agron.*

A detailed study of the genetic fundamentals and modern procedures used in the development of plant breeding programs for the improvement of agronomic crops. *Ray.*

**850\* Soils of the Cold Regions G 3***Sp. 3 cl.*

*Prereq.: 30 cr. hrs. of Agron. or 30 cr. hrs. of Geog. and Geol. and Ecology.*

A study of the morphological, physical, chemical and biological properties of the soils and environmental features of the polar and alpine regions. *Everett.*

**860†\* Chemistry of Soil Organic Matter G 3***Sp. 3 cl.*

*Prereq.: 660 and 25 cr. hrs. of Agron., or 20 cr. hrs. Agron. and 25 cr. hrs. Chem., Biochem. or Microbiol.*

A comprehensive study of soil organic matter including methods of study, theories of synthesis, physical and chemical properties, accumulation and functions of organic matter. *Müller.*

**870\* Soil-Plant Relationships G 3***Su. (1st term). 3 cl.*

*Prereq.: 20 cr. hrs. of soil and/or plant sciences and 10 cr. hrs. of plant physiology.*

Discussion of recent literature pertaining to growth response curves, nutrient uptake, movement of nutrients in the soil, and measurement of availability of nutrients to plants. *McLean and Himes.*

**871†\* Advanced Soil Physics G 3***W. 3 cl.**Prereq.: 671 and permission of instructor.*

Moisture, gaseous, and thermal processes and regimes in vegetated soils and their influences on plant growth. *Taylor.*

**872 Physical Chemistry of Soils G 5**(805) *W. 3 cl., 2 3-hr. labs.*

*Prereq.: 671, 672, Chem. 521 or 532, and 15 additional cr. hrs. in Agron. or Biol.*

A study of the physico-chemical properties of soil including methods of characterizing clay minerals, soil acidity, ionic absorption and release, and plant nutrient uptake. *McLean.*

**880 Seminar G 2**(801) *Su, A, W, Sp. 1 cl.**Repeatable to a maximum of 12 cr. hrs.*

Discussion of current problems in agronomy.

**884 Special Group Studies G 3**(802) *A, W, Sp.**Prereq.: Permission of instructor.*

a. Theory and Application of Clay Membrane Electrodes. *Sp.\* McLean.*

**885 Research Principles and Techniques G 1***A. 1 cl.*

The philosophy of graduate education and the description of the techniques and special equipment most useful for conducting research in crops and soils science.

**887 Techniques of Experimental Design G 5**(807) *W. 5 cl.*

*Prereq.: Biol. 650 and 651, and 10 cr. hrs. of Agron., or related subjects at the 400 level or above.*

A study of experimental designs and their application to agricultural research. *Smith.*

**896 Interdepartmental Seminar in Polar and Alpine Studies G 1-3***Sp.**(See under Interdepartmental Seminars).***897 Interdepartmental Seminar in Natural Resources G 1***A, W, Sp.**(See under Interdepartmental Seminars).***999 Research G Arr.**(950) *Su, A, W, Sp.*

Research for thesis or dissertation purposes only.



## Air Science

(Aerospace Studies)

Office: 353 ROTC Bldg., 2121 Tuttle Park Place

Air Force Reserve Officer Training Corps.  
Colonel Basham & Staff.

General Military Education Program  
(Freshmen & Sophomores)

### 101 Organization for United States National Defense U 2

(401) A. 1 cl., 1 lab. hr.

An introduction to the Air Force as a profession and its organization for United States National Defense, and the development of the Air Force Combat Commands.

### 102 Air Force, a Career Possibility U 2

(402) W. 1 cl., 1 lab. hr.

Prereq.: 101 or permission of Professor of Aerospace Studies.

A continuation of the Air Force organization with emphasis on the support commands and further development of the Air Force as a profession with consideration of its career opportunities.

### 103 American Democracy versus International Communism U 2

(403) Sp. 1 cl., 1 lab. hr.

Prereq.: 102 or permission of Professor of Aerospace Studies.

A comprehensive study of the major ideological conflicts of the world with concentration on American democracy and international communism.

### 201 The Military Might of the Communist World U 2

(501) A. 1 cl., 1 lab. hr.

Prereq.: 103 or permission of Professor of Aerospace Studies.

A survey of the military and political factors contributing to the might of the member countries in the communist world.

### 202 United States Land and Sea Power U 2

(502) W. 1 cl., 1 lab. hr.

Prereq.: 103 or permission of Professor of Aerospace Studies.

A study of the major factors contributing to United States land and sea power and their unified use with U.S. Air Force.

### 203 The Free World Military Alliances U 2

(503) Sp. 1 cl., 1 lab. hr.

Prereq.: 103 or permission of Professor of Aerospace Studies.

An insight into those factors which are contributing to the military power of the free world nations through various alliances and treaties.

PROFESSIONAL OFFICER EDUCATION PROGRAM  
(Juniors, Seniors, & Graduate Students)

### 301 History of Aerospace Power U 3

(601) A. 3 cl., 1 lab.

Prereq.: Completion of General Military Course; completion of Air Force ROTC Two-Year Field Training Unit; or permission of Professor of Aerospace Studies.

An examination of the nature of war and the growth and development of aerospace power.

### 302 Air Force Organization and Operational Concepts U 3

(602) W. 3 cl., 1 lab.

Prereq.: 301 or permission of Professor of Aerospace Studies.

A fundamental study of the Air Force command structure; an investigation of concepts, doctrine and employment of aerospace forces.

### 303 Astronautics and Space Operations U 3

(603) Sp. 3 cl., 1 lab.

Prereq.: 302 or permission of Professor of Aerospace Studies.

A study of aerospace technology; current and future space operations and their relationship to national security.

### 401 The Professional Officer U 3

(705) A. 3 cl., 1 lab.

Prereq.: 303 or permission of Professor of Aerospace Studies.

An analysis of problem solving techniques, military professionalism and the Command-Staff Team relationship.

### 402 Leadership and the Military Justice System U 3

(706) W. 3 cl., 1 lab.

Prereq.: 303 or permission of Professor of Aerospace Studies.

Study and practical application of human relations, the theories and techniques of leadership, and the uniform code of military justice.

### 403 Management of Aerospace Forces U 3

(707) Sp. 3 cl., 1 lab.

Prereq.: 303 or permission of Professor of Aerospace Studies.

A study of the principles and functions of management, discipline and the junior officer responsibilities employing case studies and scientific method.

### 411 Weather and Navigation U 1

(701) A, W, Sp. 4 cl. first 4 wks. of qtr.

Prereq.: 303 or permission of the Professor of Aerospace Studies.

Basic principles of weather and navigation; preparation of student to meet Federal Aviation Agency standards for student pilots in Air Force Flight Instruction Program.

## Allied Medicine

(School of Allied Medical Professions)

Office: M-118 Starling Loving Hall, 320 West 10th Avenue

Professor Atwell; Assistant Professors Schoen and Wenberg.

### 101 Introduction to the Health Professions U 2

A, W. 2 cl.

An examination of the professions involved in health care with emphasis on those offered in the School of Allied Medical Professions.

**591 Interdisciplinary Health Care U P 2**  
*A, W, Sp. 2 cl.**Prereq.: Enrollment in College of Medicine.*

A focus on the professions that compose the allied health team, including study and evaluation of health trends, social legislation and current professional issues.

**592 Interdisciplinary Health Care— U P 2**  
**Field Study***A, W, Sp. 4 cl., arr.**Prereq. or concur.: 591; permission of instructor.*

Selected patient care experiences that will develop the concept of the Health Care Team.

**593 Individual Studies U 1-5***Su, A, W, Sp. 1-5 cl., arr.**Prereq.: Permission of instructor.**Repeatable to a maximum of 15 cr. hrs.*

Guided study of selected topics.

**595 Seminar U 1-3***Su, A, W, Sp. 1-3 cl., arr.**Prereq.: Admission to School of Allied Medical Professions and permission of instructor.**Repeatable to a maximum of 6 cr. hrs.*

Conferences and group discussions of selected topics.

## Anatomy

Office: 414 Hamilton Hall, 1645 Neil Avenue

Professors Graves (Chairman), Ackerman, H. Aplington, Baker (Emeritus), Edwards (Emeritus), J. Eglitis, I. Eglitis, Gaughran, and Palmer; Associate Professors Delphia, Gersten (Emeritus), Hall, and Russell; Assistant Professors Boston, Hayes, Humbertson, Ingersoll, James King, John King, Kontras, Martin, St. Pierre, Vernall, Welch, and Wismar; Instructors K. Aplington, Hines, Lauer, and Melfi.

For related courses see Biology.

**200 Introductory Anatomy U 6***(504) Su, A, W, Sp.**Prereq.: Enrollment in School of Nursing, Division of Dental Hygiene, School of Allied Medical Professions, College of Pharmacy, or Pre-Pharmacy.*

Fundamental principles of anatomy as illustrated by the dissection of the cat, supplemented by demonstrations of human material. *H. Aplington and K. Aplington.*

**201 Neuro-Muscular Anatomy U 5***(505) A. 2 cl., 2 3-hr. labs.**Prereq.: Enrollment in School of Allied Medical Professions or permission of instructor.*

Neuro-muscular anatomy of the human body.

**627 Clinical Anatomy P G 2***Sp. 2 cl.**Prereq.: Med. 2nd yr. standing.*

A study of selected anatomical regions correlated with clinical diagnostic methods. *Graves and Staff.*

**637 Essentials of Embryonic Development P 3***A. 2 cl., 1 3-hr. lab.**Prereq.: Dent. 1st yr. standing.*

The early embryology and organogenesis of man: emphasizing the pig embryo supplemented by human material. *Delphia.*

**638 Human Anatomy P G 5***W, Sp. 3 cl., 2 3-hr. lab.**Prereq.: Dent. 1st yr. standing.*

Gross anatomy of the abdomen and extremities. *I. Eglitis.*

**639 Human Anatomy P G 7***W, Sp. 4 cl., 3 3-hr. lab.**Prereq.: Dent. 1st yr. standing.*

Gross anatomy of the head, neck, and thorax. *Russell, Boston, and Lauer.*

**640 Histology P G 6***A. 3 cl., 3 3-hr. lab.**Prereq.: Dent. 1st yr. standing.*

General histology of the tissues and special histology of the organ systems. *Vernall, Hayes, and John King.*

**641 Applied Anatomy P G 1***A. 1 cl.**Prereq.: Dent. 3rd yr. standing.*

Anatomy of the head and neck as applied to clinical dentistry. *Russell.*

**651 Human Developmental Anatomy P G 2**  
**and Genetics I***A. 26 cl. and lab. hrs.**Prereq.: Med. 1st yr. standing or permission of instructor.**Not open to students with credit for 615 or 815.*

Emphasis is on human gametogenesis, fertilization, and the formation of germ layers, fetal membranes and organs.

**652 Human Developmental Anatomy P G 1**  
**and Genetics II***W. 13 cl. and lab. hrs.**Prereq.: Med. 1st yr. standing and 651 or permission of instructor.**Not open to students with credit for 617 or 815.*

Continuation of 651.

**653 Human Developmental Anatomy P G 1**  
**and Genetics III***Sp. 13 cl. and lab. hrs.**Prereq.: Med. 1st yr. standing, 651 and 652, or permission of instructor.**Not open to students with credit for 615 and 617 or 815.*

Continuation of 652.

**661 Human Anatomy I P G 4***A. 78 cl. and lab. hrs.**Prereq.: Med. 1st yr. standing or permission of instructor.**Not open to students with credit for 621 or 821.*



Gross anatomy of the human body using cadavers, roentgenograms, cross sections, models, and films; physical diagnosis, television demonstrations, and individual clinical observation.

## 662 Human Anatomy II P G 4

W. 78 cl. and lab. hrs.

Prereq.: Med. 1st yr. standing and 661, or permission of instructor.

Not open to students with credit for 621, 622 or 822.

Continuation of 661.

## 663 Human Anatomy III P G 4

Sp. 78 cl. and lab. hrs.

Prereq.: Med. 1st yr. standing, 661 and 662, or permission of instructor.

Not open to students with credit for 622 or 821 and 822.

Continuation of 662.

## 671 Human Histology I P G 4

A. 56 cl. and lab. hrs.

Prereq.: Med. 1st yr. standing or permission of instructor.

Not open to students with credit for 624 or 824.

A study of the cells and tissues of the human body.

## 672 Human Histology II P G 2

W. 28 cl. and lab. hrs.

Prereq.: Med. 1st yr. standing and 671, or permission of instructor.

Not open to students with credit for 625 or 825.

Continuation of 671.

## 673 Human Histology III P G 4

Sp. 56 cl. and lab. hrs.

Prereq.: Med. 1st yr. standing, 672, or permission of instructor.

Not open to students with credit for 624 and 625 or 824 and 825.

Continuation of 672.

## 681 Human Neurology I P G 1

(626) A. 17 cl. and lab. hrs.

Prereq.: Med. 1st yr. standing or permission of instructor.

Not open to students with credit for 642 or 826.

The gross and microscopic anatomy of the human brain and spinal cord with special emphasis on the reaction systems.

## 682 Human Neurology II P G 1

(626A) W. 17 cl. and lab. hrs.

Prereq.: Med. 1st yr. standing and 681 or permission of instructor.

Not open to students with credit for 643 or 826.

Continuation of 681.

## 683 Human Neurology III P G 3

Sp. 51 cl. and lab. hrs.

Prereq.: Med. 1st yr. standing, 682, or permission of instructor.

Not open to students with credit for 642 and 643 or 826.

Continuation of 682.

## 693 Individual Studies in Anatomy U G 2-5

(701) Su, A. W. Sp. 1 cl., 2 8-hr. lab. and/or library hrs.

Prereq.: 15 cr. hrs. in Anat. or allied fields and permission of instructor.

Designed to enable the student to pursue a minor investigation in some anatomical field of his choice.

## 705 Anatomical Methods in Electron Microscopy

2 months, offered Jan., Feb.

P 12

Sp.

G 5

Prereq.: Med. 2nd, 3rd, or 4th yr. standing and permission of instructor; graduate students by permission of instructor.

The preparation of biological materials for electron microscopy and training in the operation of the instrument; a research project may be chosen.

## 727 Anatomy of the Newborn

1 month, offered Apr., Nov.

P 6

Sp.

G 3

Prereq.: Med. 2nd, 3rd, or 4th yr. standing or graduate standing and permission of instructor.

Gross anatomy of the newborn correlated with prenatal and postnatal development; dissection and section study. Gaughran, Graves, and I. Eglitis.

## 728† Topographical Anatomy

1 month, offered July, Apr.

P 6

Sp.

G 2-4

Prereq.: Med. 2nd, 3rd, or 4th yr. standing and permission of instructor; graduate students by permission of instructor.

A study of unmounted serial cross sections of selected regions of the human body emphasizing the relationship of structures to one another in a three-dimensional perspective. Gaughran, Graves, and I. Eglitis.

## 729 Advanced Regional Dissections

1 month, offered all months.

P 6, 12, 18

Sp.

G 2-6

Prereq.: Med. 2nd, 3rd, or 4th yr. standing or permission of instructor.

A careful dissection of one or more regions of the body supplemented with literature research.

## 730 Human Anatomy: Radiological Manifestations

1 month, offered all months.

P 6, 12, 18

Sp.

G 2-4

Prereq.: Med. 2nd, 3rd, or 4th yr. standing and permission of instructor; graduate students by permission of instructor.

A study of the methods of routine projections and interpretation for best visualizing anatomic structures. Graves.

## 793 Individual Studies in Anatomy

1 month, offered all months.

P 6, 12, 18

Su, A. W. Sp.

G 3 or 5

Prereq.: Permission of instructor.

Repeatable.

- a. Blood and Hemopoiesis
- b. Blood and Connective Tissues
- c. Embryology
- d. Microscopic Anatomy
- e. Neurology
- f. Epithelial Tissue, including Glands
- g. Gross Human Anatomy
- h. Electronmicroscopy
- i. Tissue Culture

**811†\* Comparative Histology G 5**(711) *Sp. 2 cl., 3 2-hr. labs.**Prereq.: 673 or equiv. and permission of instructor.*

A general consideration of cells, tissues and organs of animals with emphasis on the comparative and evolutionary aspects. *Wismar.*

**817\* Comparative Neurology G 5***W. 3 cl., 3 2-hr. lab.**Prereq.: 618 or 642, or 826, or 683, and permission of instructor.*

A phylogenetic approach toward an appreciation of neurology; consideration of development and refinement of specific tracts from invertebrates to man. *Hall.*

**818†\* The Autonomic Nervous System G 4***W. 2 2-hr. cl.**Prereq.: 618 or 642, or 826, or 683, and permission of instructor.*

A detailed presentation of the Involuntary Nervous System. *Hall.*

**840 Medical Education G 3***Su, A, W, Sp. 3 cl.**Prereq.: Permission of instructor.*

Introductory experiences in administrative and functional aspects of all phases of medical education including observation of methods, evaluation, curriculum design, student selection, and educational research. *Ingersoll.*

**850 Seminar in Anatomy G 1**(830) *A, W, Sp.*

Discussions of research in progress and reports from the literature of current anatomical problems.

**999 Research in Anatomy G Arr.**(950) *Su, A, W, Sp.*

Research for thesis or dissertation purposes only.

## Animal Science

Office: 110 Animal Science Building, 2029 Fyffe Road

**Professors** Johnson (Chairman), Barner, Cahill, Cline, Grimshaw, Harvey, R. M. Johnson, R. R. Johnson, Klosterman, Kottman, Kunkle, Ludwick, Moxon, Reed, Teague, Tyznik, Venzke, and R. F. Wilson; **Associate Professors** Barnes, Bruner, Dehority, Martin, Newland, Ockerman, Parker, Swiger, Van Stavern, and G. R. Wilson; **Assistant Professors** Althouse, Plimpton, Smith, and Wharton; **Instructors** Boyles and Judy.

**100 Domestic Animals in the Service of Man U 5***A, W, Sp. 5 cl.**(Offered in cooperation with the Departments of Dairy Sc. and Poultry Sc.)*

The role of the animal industry in the world and the importance of the application of science in meeting the needs in the production, distribution and utilization of animal products. *Plimpton.*

**GENERAL PREREQUISITES FOR COURSES  
NUMBERED 200**

Unless otherwise indicated, the prerequisites for 200 courses are 45 cr. hrs. in collegiate courses, exclusive of ROTC and Phys. Ed.; or specified course(s) numbered 100-199.

**200 Introductory Animal Science U 5**(401) *A, W, Sp. 3 cl., 2 2-hr. lab.*

Introduction to selection, breeding, feeding, management, marketing, and utilization of beef cattle, swine, and sheep; a limited discussion of the horse is included. *Parker, R. F. Wilson, G. R. Wilson, and Judy.*

**250 Meat Selection and Identification U 3**(407) *A, W, Sp. 3 2-hr. lab.*

The structure and composition of beef, pork, veal, and lamb are used to distinguish grades and usefulness of meat products for domestic and institutional purposes. *Kunkle, Cahill, and Althouse.*

**GENERAL PREREQUISITES FOR COURSES  
NUMBERED 300 AND 400**

Unless otherwise indicated, the prerequisites for 300 and 400 courses are 90 cr. hrs. in collegiate courses, exclusive of ROTC and Phys. Ed.; or specified course(s) numbered 100-399.

**Principles of Animal Improvement***(See Dairy Sc. 420.)**(Offered in cooperation with the Departments of Animal Sc. and Poul. Sc.)***430 Principles of Animal Nutrition U 5**(530) *A, W, Sp. 4 cl., 1 2-hr. lab.**Prereq.: Chem. 102 or 122 and Math. 150 or equiv.**(Offered in cooperation with the Departments of Dairy Sc. and Poul. Sc.)*

A study of the fundamental principles of nutrition in mammals and birds. *Cline, Naber, and Tyznik.*

**440 Livestock Management U 5**(515) *W, Sp. 3 cl., 2 2-hr. lab.**Prereq.: 200 and 430.**Open to Agr. Ed. majors only.*

Feeding, breeding, and managing of beef, sheep, and swine; laboratory exercises are concerned with major management problems. *G. R. Wilson.*



#### 450 Meat and Meat Products U 5

(509) A, W, Sp. 3 cl., 2 3-hr. lab.

Prereq.: 200 and 430.

Selection of slaughter animals to illustrate the relationship of breeding, feeding, and management to carcass yield, cost, and cut-out value; meat processing is emphasized. *Althouse, Cahill, Kunkle, and Plimpton.*

#### 451 Meat Grading U 3

(510) Sp. 1 cl., 2 2-hr. lab.

Prereq.: 200 and 430; 250 for Home Ec. students.

The factors that influence the value of meat animals, carcasses, and wholesale cuts in accordance with recognized grading standards; laboratory practice. *Althouse.*

#### GENERAL PREREQUISITES FOR COURSES NUMBERED 500

Unless otherwise indicated, the prerequisites for 500 courses are 15 cr. hrs. in courses in the same discipline numbered 200 or higher, or 10 cr. hrs. in courses numbered 200 or higher in the same discipline, plus 10 cr. hrs. in courses numbered 200 or higher in specified allied disciplines; or baccalaureate degree.

#### 500 Livestock Selection U G 5

(506) Sp. 5 2-hr. lab-discussions.

Prereq.: 200, 430 and 5 additional cr. hrs. in 541, 542, 543, or 544.

Laboratory exercises employing current standards of animal excellence including carcass value for the selection and improvement of farm livestock. *G. R. Wilson.*

#### Livestock Marketing

(See Agr. Ec. 522.)

(Offered in cooperation with the Department of Animal Sc.)

#### 541 Horse Production and Management U G 5

(501) W. 3 cl., 2 2-hr. lab.

Prereq.: 200, 430 and 5 additional cr. hrs. in Animal Sc., or Dairy Sc.

The application of science and basic principles of nutrition, genetics, physiology, and marketing to the production and management of horses.

#### 542 Beef Cattle Production and Management U G 5

(502) A, Sp. 3 cl., 2 2-hr. lab.

Prereq.: 200, 430 and 5 additional cr. hrs. in Animal Sc., Dairy Sc., or Poul. Sc.

The application of science and basic principles of nutrition, genetics, physiology, and marketing to the production and management of beef cattle.

#### 543 Swine Production and Management U G 5

(503) A, Sp. 3 cl., 2 2-hr. lab.

Prereq.: 200, 430 and 5 additional cr. hrs. in Animal Sc., Dairy Sc., or Poul. Sc.

Selection of breeding stock, reproduction, feeding, management, and sale of commercial and breeding swine; swine herds, markets, and research stations are visited. *R. F. Wilson.*

#### 544 Sheep Production and Management U G 5

(505) W, Sp. 3 cl., 2 2-hr. lab.

Prereq.: 200, 430 and 5 additional cr. hrs. in Animal Sc., Dairy Sc., or Poul. Sc.

The application of science and basic principles of nutrition, genetics, physiology, and marketing to the production and management of sheep.

#### 550 Meat Processing U G 3

A. 2 cl., 1 2-hr. lab.

Prereq.: 450.

Fundamental changes in soft animal tissue resulting from comminution and application of chemicals and heat. *Cahill.*

#### 593 Individual Studies U 3-5

(701) Su, A, W, Sp.

Prereq.: Junior or senior standing and permission of instructor.

Special assignments and elementary research; problems assigned after consultation with instructor in charge.

#### 594 Special Group Studies U 3-5

(701) Su, A, W, Sp.

Prereq.: Junior or senior standing and permission of instructor.

Special assignments and elementary research; problems assigned after consultation with instructor in charge.

#### GENERAL PREREQUISITES FOR COURSES NUMBERED 600

Unless otherwise indicated, the prerequisites for 600 courses are 15 cr. hrs. in courses in the same discipline numbered 300 or higher, or 10 cr. hrs. in courses numbered 300 or higher in the same discipline, plus 10 cr. hrs. in courses numbered 300 or higher in specified allied disciplines.

#### 630 Nutrition and Feeding of Monogastric Animals U G 5

A, W, Sp. 4 cl., 1 2-hr. lab.

Prereq.: 430 or equiv.

(Offered in cooperation with the Department of Poul. Sc.)

The nutrition of swine, poultry, and laboratory animals; principles and practice. *Cline and Naber.*

#### 631 Nutrition and Feeding of Ruminant Animals U G 5

A, W, Sp. 4 cl., 1 2-hr. lab.

Prereq.: 430 or equiv.

(Offered in cooperation with the Department of Dairy Sc.)

The nutrition of dairy cattle, beef cattle, and sheep; principles and practice. *Staubus and Tyznik.*

#### 650 Advanced Meat Technology U G 3

(619) W, Sp. 2 cl., 2 1-hr. lab.

Prereq.: 15 cr. hrs. Chem., 5 cr. hrs. Microbiol., and 5 cr. hrs. Anat.

Evaluation of scientific contribution to meat products and processing. *Cahill, Kunkle, and Ockerman.*

#### 651 Laboratory Analysis of Meat Products U G 3

W. 2 cl., 1 2-hr. lab.

Prereq.: 450, 10 cr. hrs. Chem., and 5 cr. hrs. Microbiol.

Analysis of meat products by physical, chemical, and microbiological techniques. *Ockerman.*

#### 693 Individual Studies U G 3-5

(701) Su, A, W, Sp.

Prereq.: Permission of instructor.

Special assignments and advanced research; problems assigned after consultation with the instructor in charge.

## 694 Special Group Studies U G 3-5 (701) Su, A, W, Sp.

*Prereq.: Permission of instructor.*

Special assignments and advanced research; problems assigned after consultation with the instructor in charge.

### GENERAL PREREQUISITES FOR COURSES NUMBERED 700

Unless otherwise indicated, the prerequisites for 700 courses are 15 cr. hrs. in courses in the same discipline numbered 400 or higher, plus additional specified course(s) numbered 600 or higher.

#### Genetics of Animal Populations

(See Dairy Sc. 720.)

(Offered in cooperation with the Departments of Animal Sc. and Poul. Sc.)

### GENERAL PREREQUISITES FOR COURSES NUMBERED 800 AND 900

Unless otherwise indicated, the prerequisites for 800 and 900 courses are 30 cr. hrs. in courses in the same discipline, or 20 cr. hrs. in the same discipline, plus 25 cr. hrs. in specified allied disciplines.

## 800 Seminar G 1 (810) A, W, Sp.

*Prereq.: Animal Sc. graduate standing.*

Discussions of current animal science research.

#### Current Topics in Animal Genetics

(See Dairy Sc. 820.)

(Offered in cooperation with the Department of Animal Sc. and Poul. Sc.)

## 830 Advanced Studies in Nutrition G 3

A, W, Sp. 3 cl.

*Prereq.: Biochem. 618 and 623 or Physiol. Chem. 611 and 612.*

Repeatable to a maximum of 18 cr. hrs.

(Offered in cooperation with the Departments of Dairy Sc. and Poul. Sc.)

830.01†\* Energy

A.

Conrad.

830.02†\* Minerals

W.

Cline.

830.03†\* Proteins

Sp.

Naber.

830.04\* Vitamins

A.

Tyznik.

830.05\* Lipids

W.

R. R. Johnson.

830.06\* Laboratory Methods in Nutrition

Sp.

Purser.

## 898 Interdepartmental Seminar in Nutrition and Food Technology G 1 Sp.

(See Interdepartmental Seminars.)

## 999 Research G Arr. (950) Su, A, W, Sp.

Research for thesis or dissertation purposes only.

## Anthropology

Office: 13 Page Hall, 65 South Oval Drive

Professors Williams (Chairman), Bourguignon, and Estel; Assistant Professors Dentan, Hall, Krause, and Little; Adjunct Assistant Professor Baby.

## 210 Introduction to Ethnology U 5 (503) A, W, Sp. 5 cl.

*Prereq.: 2nd yr. standing.*

A comparative survey of tribal peoples in basic world areas—Asia, Africa, Oceania, North and South America. Williams and Staff.

## 251 Introduction to Physical Anthropology U 5 (502) A, W, Sp. 5 cl.

*Prereq.: 2nd yr. standing.*

The organic development of man; human evolution; the modern groupings of man. Estel and Staff.

## 261 Introduction to Anthropology U 5 (501) A, W, Sp. 5 cl.

*Prereq.: 2nd yr. standing.*

An introductory survey of the field of Anthropology, with emphasis upon the prehistoric development of culture; behavior of man illustrated by the simpler societies.

## 401 Dynamics of American Culture U 3 (633) A. 3 cl.

*Prereq.: 5 cr. hrs. of Anthropol., or equiv. or permission of instructor.*

A review of American customs, institutions, social systems, and ideas, with emphasis on recent cultural anthropological studies. Krause.

## 410 Social Relations in Folk Societies U 4 (612) A. 4 cl.

*Prereq.: 5 cr. hrs. of Anthropol., or equiv. and permission of instructor.*

Forms of social organization in simpler societies; dynamics of social relations in such societies; a comparison of simpler forms of social structure with complex forms. Dentan.

## 412 Indians of the Americas U 4 (630) Sp. 4 cl.

*Prereq.: 5 cr. hrs. of Anthropol., or equiv. and permission of instructor.*

American Indian cultures of the time of European conquest.

## 414 Ethnology of Asia U 4 (634) W. 4 cl.

*Prereq.: 5 cr. hrs. of Anthropol., or equiv. and permission of instructor.*

A survey of the people of Asia; high civilizations and tribal cultures; prehistoric origins of Asian cultures; the distribution of physical types; languages; social customs. Dentan.

## 415 Ethnology of Africa U 4 (635) A. 4 cl.

*Prereq.: 5 cr. hrs. of Anthropol., or equiv. or permission of instructor.*

The people of Africa south of the Sahara; distribution of physical types; languages; cultural areas; West Coast kingdoms as source of the American Negro.



**416 Peoples of Cultures of Latin America U 3**

(659) *Sp. 3 cl.*

*Prereq.: 5 cr. hrs. of Anthropol., or equiv. or permission of instructor.*

The pre-Columbian background; contemporary races, cultures, and social organization; the emergence of Latin America as a distinct culture area in the modern world. *Bourguignon.*

**430 Introduction to Anthropological Linguistics U 4**

(660) *W. 4 cl.*

*Prereq.: 10 cr. hrs. of Anthropol. or permission of instructor.*

Relations of language to social organization, world view, socialization, and cultural analysis. *Callaghan.*

**450 Fossil Man U 4**

(636) *W. 4 cl.*

*Prereq.: 251 or equiv. or 15 cr. hrs. in Biol. Sc. or Geol.*

A comprehensive study of the fossil hominids; fossils of *Homo sapiens* and their relation to other fossil hominids. *Little.*

**452 Physical Variability of Modern Man U 4**

(637) *Sp. 4 cl.*

*Prereq.: 251 or equiv. or 15 cr. hrs. in Biol. Sc. including genetics.*

The racial classification of man on a biological basis; the evolution of *Homo sapiens* and the development of human variability; racial differences and mixtures. *Little.*

**454 Osteometry U 2**

(730) *W. 1 hr. lec., 3-hr. lab.*

*Prereq. or concur.: 450 or equiv.*

Laboratory measurements of human skeletons. *Baby.*

**456 Anthropometry U 2**

(731) *Sp. 1 hr. lec., 3-hr. lab.*

*Prereq. or concur.: 452 or equiv.*

Laboratory measurement of living human beings. *Baby.*

**460 American Indian Prehistory U 4**

(632) *A. 4 cl.*

*Prereq.: 5 cr. hrs. of Anthropol., or equiv. or permission of instructor.*

A survey of American Indian archaeology; the origin and development of Indian culture from the first peopling of the continent to the coming of Europeans. *Hall.*

**509 Culture Patterns and Personality U G 3**

(624) *Sp. 3 cl.*

*Prereq.: Soc. 470 or equiv. or Psychol. 320 or equiv.*

Anthropological contributions to the field of social psychology; variations in personality as associated with variations in culture; the range of personality differences within various cultures. *Bourguignon.*

**510 Culture Contact and Technological Change U G 4**

(607) *Sp. 4 cl.*

*Prereq.: 261 and Soc. 101 or 201 or equiv. or permission of instructor.*

Consequences for folk societies of the diffusion of Euro-American culture; introduction of advanced technology to underdeveloped areas; cultural aspects of colonialism and military government. *Dentan.*

**570 Theory and Problems of Cultural Anthropology U G 4**

(639) *W. 4 cl.*

*Prereq.: 20 cr. hrs. in allied subjects.*

Major theoretical viewpoints in cultural anthropology; significance of the cultural approach; applied anthropology to psychology and other social sciences.

**610 Religion in Folk Societies U G 4**

(613) *W. 4 cl.*

*Prereq.: 5 cr. hrs. of Anthropol., or equiv. and permission of instructor.*

World views in folk societies, emphasizing religion and sacred beliefs; integration of these beliefs with social organization and the arts. *Bourguignon.*

**640 Research Methods in Physical Anthropology U G 3**

(710) *A. 3 cl.*

*Prereq.: 15 cr. hrs. of Anthropol. or 10 cr. hrs. of Anthropol. and 10 cr. hrs. of closely related work, and permission of instructor.*

Methods used in the analysis and classification of man in both comparative and evolutionary approaches. *Little.*

**662 Principles of Research in Archaeology U G 4**

(670) *Sp.*

*Prereq.: 261 or equiv. plus 5 additional cr. hrs. of Anthropol. or 10 cr. hrs. of work closely related to archaeological field research, and permission of instructor.*

Instruction in basic methods of archaeological analysis, including artifact typology and cultural classification; methods of excavation and recording; one-day or week-end field sessions. *Baby.*

**664 Archaeological Training Expedition U G 8-16**

(674) *Su. 8 cr. hrs. for either term.*

*(Full time in expedition camps.)*

*Prereq.: 662 or equiv. or 10 cr. hrs. of work closely related to archaeological field research, and permission of instructor.*

Joint expedition of The Ohio State University, Department of Anthropology, and the Ohio State Museum, engaged in excavating prehistoric sites in Ohio; experience in archaeological field work. *Baby and Staff.*

**693 Special Problems U G 1-4**

(700) *A, W, Sp.*

*Prereq.: 10 cr. hrs. of Anthropol. and permission of instructor.*

- a. Theory
- b. History
- c. Anthropological Linguistics
- d. Research Methods
- e. Prehistory
- f. Ethnology
- g. Physical Anthropology
- h. Cultural Anthropology
- i. Unclassified

**803 Seminars in Anthropology G 3**

(820) *A, W, Sp.*

Fields of specialization are listed under the description of 693, and registration in 803 should be followed by an alphabetical letter indicating the field of the seminar.

**805 Seminars in Ethnology G 3-5***A, W, Sp. 1 2-hr. cl.**Repeatable to a maximum of 30 cr. hrs., not more than 5 of which shall be in any one of the following topics.*

- a. North America
- b. South America
- c. East Asia
- d. Southeast Asia
- e. Oceania
- f. South Asia
- g. Middle East
- h. Africa
- i. Europe
- j. Circumpolar

**810 Seminars in Cultural Anthropology G 3-5***A, W, Sp. 1 2-hr. cl.**Repeatable to a maximum of 30 cr. hrs., not more than 5 of which shall be in any one of the following topics.*

- a. Nature of Culture
- b. Acculturation, Change, Stability
- c. Culture and Personality
- d. Enculturation
- e. Social Organization
- f. Religious Behavior
- g. Field Methods in the Study of Culture
- h. Theory and Problems in Cultural Anthropology
- i. Peasant Cultures
- j. Cultural Evolution
- k. Human Ecology

**820 Seminars in Physical Anthropology G 3-5***A, W, Sp. 1 2-hr. cl.**Repeatable to a maximum of 30 cr. hrs., not more than 5 of which shall be in any one of the following topics.*

- a. Theory and Method in Physical Anthropology
- b. Serology
- c. Primate Structure and Behavior
- d. Fossil Man
- e. Osteometry
- f. Anthropometry
- g. Physical Variability of Man
- h. The Physical Anthropology of Selected World Culture Regions

**830 Seminars in Prehistory G 3-5***A, W, Sp. 1 2-hr. cl.**Repeatable to a maximum of 30 cr. hrs., not more than 5 of which shall be in any one of the following topics.*

- a. Method and Theory in Archaeology
- b. North American Archaeology
- c. South American Archaeology
- d. European Archaeology
- e. Asian Archaeology
- f. African Archaeology
- g. Oceanic Archaeology
- h. Archaeology of High Civilizations
- i. Special Problems in Archaeology

**840 Seminars in Anthropological Linguistics G 3-5***A, W, Sp. 1 2-hr. cl.**Repeatable to a maximum of 30 cr. hrs., not more than 5 of which shall be in any one of the following topics.**(Offered in cooperation with the Department of Linguistics.)*

- a. Animal Communication and Human Language
- b. Social Structure and Language
- c. Enculturation and Language
- d. Language and Cultural Structuring of Perceptual Patterns
- e. Ethnography of Language
- f. Language as a Research Tool in Ethnography, Ethnology, and Cultural Anthropology

**850 Seminars in Museology G 3***A, W, Sp. 1 2-hr. cl.**Repeatable to a maximum of 9 cr. hrs., not more than 3 of which shall be in any one of the following topics.*

- a. Introduction
- b. Problems
- c. Research Methods

**896 Interdepartmental Seminar in Polar and Alpine Studies G 1-3***Sp.**(See under Interdepartmental Seminars.)***899 Interdepartmental Seminar G 1-5***Su, A, W, Sp.**(See under Interdepartmental Seminars.)***993 Individual Studies in Anthropology G 3***Su, A, W, Sp. 2 conf. hrs.**Repeatable to a maximum of 18 cr. hrs., not more than 6 of which shall be in any one of the following topics.*

- a. Theory
- b. History
- c. Anthropological Linguistics
- d. Research Methods
- e. Prehistory
- f. Ethnology
- g. Physical Anthropology
- h. Cultural Anthropology
- i. Unclassified

**994 Special Problems Seminar G 3***A, W, Sp. 1 2-hr. cl.**Repeatable to a maximum of 12 cr. hrs.; topics may not be repeated.*

- a. Theory
- b. History
- c. Anthropological Linguistics
- d. Research Methods
- e. Prehistory
- f. Ethnology
- g. Physical Anthropology
- h. Cultural Anthropology
- i. Unclassified

**998 Research in Anthropology: Thesis G Arr.***(950) Su, A, W, Sp.**Research for thesis purposes only.***999 Research in Anthropology: Dissertation G Arr.***(950) Su, A, W, Sp.**Research for dissertation purposes only.*



## Arabic

Office: 116 Derby Hall, 154 North Oval Drive

Professors Bulatkin (Chairman); Assistant Professor Cadora.

- 101 Introduction to Modern Literary Arabic** U 5  
A. 5 cl., 9 lab. hrs.

Sound and writing systems, morphological patterns, basic sentences with brief dialogues and excerpts from Arabic newspapers and broadcasts.

- 102 Introduction to Modern Literary Arabic** U 5  
W. 5 cl., 9 lab. hrs.  
Prereq.: 101.

Continuation of morphological patterns and basic syntactic structures, with long dialogues and news items, speeches, communiqués, and simple pieces of expository prose.

- 694 Special Group Studies in Arabic** U G 1-5  
A, W, Sp.  
Prereq.: Permission of instructor.  
Repeatable to a maximum of 15 cr. hrs.

- 793 Individual Studies in Arabic** U G 1-5  
A, W, Sp.  
Prereq.: Permission of instructor.  
Repeatable to a maximum of 15 cr. hrs.

- 794 Special Group Studies in Arabic** U G 1-5  
A, W, Sp.  
Prereq.: Permission of instructor.  
Repeatable to a maximum of 15 cr. hrs.

- 111 Introductory Architectural Design** U 4  
(411) A. 1 cl., 9 lab. hrs.  
Open only to students enrolled in School of Architecture.

An introduction to architectural design, through exercises in graphics, delineation, techniques, and space organization. Library research and individual criticism. Bowser and Staff.

- 112 Introductory Architectural Design** U 4  
(412) W. 1 cl., 9 lab. hrs.  
Prereq.: 111.  
Continuation of 111.

- 113 Introductory Architectural Design** U 4  
(413) Sp. 1 cl., 9 lab. hrs.  
Prereq.: 112.  
Continuation of 112.

- 211 Elementary Architectural Design** U 5  
(511) A. 15 lab. hrs.  
Prereq.: 113.

Elementary problems in architectural design dealing with organization of space for human occupancy; library research, individual criticism, and lectures. Tilley and Staff.

- 212 Elementary Architectural Design** U 5  
(512) W. 15 lab. hrs.  
Prereq.: 211.  
Continuation of 211.

- 213 Elementary Architectural Design** U 5  
(513) Sp. 15 lab. hrs.  
Prereq.: 212.  
Continuation of 212.

- 393 Special Studies in Architecture** U 1-5  
A, W, Sp.  
Prereq.: Permission of School.  
For students not majoring in Arch. who desire to pursue special studies in field of Arch.  
Repeatable to a maximum of 15 cr. hrs.

- 511 Intermediate Architectural Design** U 5  
(611) A. 15 lab. hrs.  
Prereq.: 213.

Intermediate problems in architectural design dealing with space analysis and site planning; presented in an integrated and related series of building types. Clark and Staff.

- 512 Intermediate Architectural Design** U 5  
(612) W. 15 lab. hrs.  
Prereq.: 511.  
Continuation of 511.

- 513 Intermediate Architectural Design** U 5  
(613) Sp. 15 lab. hrs.  
Prereq.: 512.  
Continuation of 512.

- 521 Elementary Architectural Construction** U 3  
A. 1 cl., 6 lab. hrs.  
Prereq.: Eng. Mech. 203.

Composition, manufacture, physical properties, standards, and uses of basic building materials. Theory, methods, codes, and specifications of architectural construction, preparation of contract drawings. Dipner and Staff.

## Architecture

Office: 106 Brown Hall, 190 West 17th Avenue

Professors Whitaker (Director), Baumer (Emeritus), Borchers, Clark, Phyllian, Ronan (Emeritus), Tilley, and Wilson; Associate Professors Bowser, Brinkers, Codrington, and Tobey; Assistant Professor Dipner; Adjunct Assistant Professor Passe; Instructors and Lecturers.

- 101 Survey of Architecture** U 5  
Sp. 3 cl.  
Prereq.: 1st yr. standing in the School or permission of School.

The work of the architect: his objectives in relation to social needs and related environmental design professions: landscape architecture, city planning, engineering and the building industry. Whitaker and Staff.

**522 Elementary Architectural Construction U 3**  
*W. 1 cl., 6 lab. hrs.*  
*Prereq.: 521.*  
 Continuation of 521.

**523 Elementary Architectural Construction U 3**  
*Sp. 1 cl., 6 lab. hrs.*  
*Prereq.: 522.*  
 Continuation of 522.

**601 History of Ancient Architecture U 3**  
*(604) A. 3 cl.*  
 Analysis of primitive structures and ancient architecture before the Christian era to illustrate basic principles of shelter, natural building techniques, and organization of space. *Borchers.*

**602 History of Medieval and Renaissance Architecture U 3**  
*(605) W. 3 cl.*  
 Analysis of architecture from the early Christian era through the Baroque, related to the spirit of the age, social organization, and increasing structural knowledge. *Borchers.*

**603 History of Contemporary Architecture U 3**  
*(606) Sp. 3 cl.*  
 Analysis of architecture from the Industrial Revolution to the present, reflecting changes of society, fashion and architectural practice, new materials and structural techniques. *Borchers.*

**611 Advanced Architectural Design U 6**  
*(711) A. 18 lab. hrs.*  
*Prereq.: 513.*  
 Advanced problems in architectural design dealing with space organization in relation to group composition and community patterns; library research and individual criticism. *Phillian and Staff.*

**612 Advanced Architectural Design U 6**  
*(712) W. 18 lab. hrs.*  
*Prereq.: 611.*  
 Continuation of 611.

**613 Advanced Architectural Design U 6**  
*(713) Sp. 18 lab. hrs.*  
*Prereq.: 612.*  
 Continuation of 612.

**621 Intermediate Architectural Construction U 4**  
*A. 2 cl., 6 lab. hrs.*  
*Prereq.: 513, 523 and concur. 661, 662, 663.*  
 Continuation of composition, manufacture, physical properties, standards, and uses of basic building materials; theory, methods, codes and specifications of architectural construction, preparation of contract drawings. *Wilson.*

**622 Intermediate Architectural Construction U 4**  
*W. 2 cl., 6 lab. hrs.*  
*Prereq.: 621.*  
 Continuation of 621.

**623 Intermediate Architectural Construction U 4**  
*Sp. 2 cl., 6 lab. hrs.*  
*Prereq.: 622.*  
 Continuation of 622.

**661 Architectural Building Equipment U 4**  
*A. 3 cl., 3 lab. hrs.*  
*Concur.: 611, 612, 613.*  
 Fundamentals of building services; installation of approved equipment; application of building, fire prevention and safety codes; specifications and preparation of working drawings. *Dipner and Passe.*

**662 Architectural Building Equipment U 4**  
*W. 3 cl., 3 lab. hrs.*  
*Prereq.: 661.*  
 Continuation of 661.

**663 Architectural Building Equipment U 4**  
*Sp. 3 cl., 3 lab. hrs.*  
*Prereq.: 662.*  
 Continuation of 662.

**689 Inspection Trip U 2**  
*(631) Sp.*  
*Prereq.: Arch., or Land. Arch., 3rd or 4th yr. standing.*  
 Taken between Winter and Spring Quarters. Trip to inspect architects' offices and buildings in Ohio and neighboring states; written report required.

**693 Special Studies in Architecture U G 1-5**  
*A, W, Sp.*  
*Prereq.: Permission of School.*  
 For students majoring in Arch. desiring to pursue special studies not offered in the fixed curriculum.  
 Repeatable to a maximum of 15 cr. hrs.

**700 Allied Arts U 3**  
*(707) A. 3 cl.*  
*Prereq.: Arch. 5th yr. standing.*  
 Analysis of arts related to architecture and the expression of the nature of materials in architectural ornament, furniture and furnishings, and the garden. *Borchers.*

**711 Advanced Architectural Design U 7 and Thesis**  
*(714) A. 21 lab. hrs.*  
*Prereq.: 613., Arch. 5th yr. standing.*

The thesis problem summarizes all the student's architectural experiences as an undergraduate; and includes a complete analysis of building types, library research, design presentation, and working drawings. *Coddington and Staff.*

**712 Advanced Architectural Design U 7 and Thesis**  
*(715) W. 21 lab. hrs.*  
*Prereq.: 711.*  
 Continuation of 711.

**713 Advanced Architectural Design U 10 and Thesis**  
*(716) Sp. 30 lab. hrs.*  
*Prereq.: 712.*  
 Continuation of 712.



**721 Advanced Architectural Construction U 5**

(781) A. 3 cl., 6 lab. hrs.

Concur.: 714, Arch. 5th yr. standing.

Theory and methods, codes and specifications pertaining to basic parts of advanced architectural construction, and preparation of working drawings. *Wilson.*

**722 Advanced Architectural Construction U 5**

(782) W. 3 cl., 6 lab. hrs.

Prereq.: 721.

Continuation of 721.

**723 Advanced Architectural Construction U 5**

(783) Sp. 3 cl., 6 lab. hrs.

Prereq.: 722.

Continuation of 722.

**751 Professional Practice U 3**

(754) A. 3 cl.

Prereq.: 5th yr. standing in Arch.

Organization of the construction industry as background for legal and economic bases of architectural documents: programs, designs, working drawings, specifications, contracts, bonds, supervision forms. *Clark.*

**752 Professional Practice U 3**

(755) W. 3 cl.

Prereq.: 5th yr. standing in Arch.

Procedural and substantive aspects of architectural practice: office organization, private and governmental relations, code compliance, estimates, and bid analysis exercises assigned from research materials. *Clark.*

**801 Seminar G 2**

A. 2 cl.

Prereq.: Admission to graduate curriculum in architecture or permission of instructor.

Evolution of the professional practice of architecture; developments in architectural theory and education; problems in the contemporary practice of architecture. *Brinkers.*

**802 Seminar G 2**

W. 2 cl.

Prereq.: 801.

Continuation of 801. *Brinkers.***803 Seminar G 2**

Sp. 2 cl.

Prereq.: 802.

Continuation of 802. *Brinkers.***811 Advanced Architectural Design G 5**

A, W, Sp. 15 lab. hrs.

Prereq.: Admission to graduate curriculum in Arch.

Advanced problems in architectural design of complex buildings and building groups for contemporary society; analyses of the economic bases for building and of the technical requirements of the program. *Brinkers and Staff.*

**812 Advanced Architectural Design G 5**

A, W, Sp. 15 lab. hrs.

Prereq.: 811.

Continuation of 811.

**871 Special Studies in Architecture G 1-5**

Su, A, W, Sp.

Prereq.: Permission of instructor.

Repeatable to a maximum of 15 cr. hrs.

871.01 Architectural Education

871.02 Architectural Photogrammetry

871.03 Building Production

871.04 Control of Architectural Environment

871.05 Historical Analysis of Building Types

871.06 Perception in Architecture

871.07 Protective Construction

871.08 Structural Form and Behavior in Architecture

871.09 Theory of Architecture

871.10 Urban Design

**899 Interdepartmental Seminar G 1-5**

Su, A, W, Sp.

(See under Interdepartmental Seminars.)

**999 Research in Architecture G Arr.**

(950) Su, A, W, Sp.

Research for thesis purposes only.

## Arts and Sciences Survey Courses

**001 Orientation to the Colleges of the Arts and Sciences U 0**

(401) Su, A, W, Sp.

Prereq.: 1st qtr. freshmen.

Conferences for orientation of new students in the University and the Colleges of the Arts and Sciences.

**605† Foundations of Contemporary Civilization U G 5**

A.

A study of the major movements of thought in science, social philosophy, the humanities, and religion in the development of Western civilization. *Brown.*

**608 Development of Modern Science U G 5**

Sp. 5 cl.

Prereq.: 4th yr. standing.

The nature of science and its place in human culture as revealed by detailed sequences of discovery from the history of its development. *LaRocque.*

**750 Arts-Graduate Course U G 0**

Su, A, W, Sp.

Prereq.: Senior standing and approval by the Honors Committee of the Colleges of the Arts and Sciences and the Graduate School.

A progress grade will be given at the end of each quarter. At the conclusion of the program, course credits and final grades will be assigned.

Registration in this course constitutes full-time enrollment, unless otherwise specified.

A program leading to the simultaneous award of the Bachelor of Arts and Master of Arts degrees.

## Astronomy

Offices: 5040 Physics and Astronomy Building, 174 West 18th Avenue; Perkins Observatory, Delaware, Ohio

**Professors** Slettebak (Chairman), Bobrovnikoff (Emeritus), Czyzak, Keenan, Ko, Kraus, and Protheroe; **Associate Professors** Capriotti, Collins, and Mitchell; **Assistant Professors** Ehman, Roark, and Wing; **Lecturer** Byard.

### 101 General Astronomy I U 5

(401) A. 4 cl., 1 1-hr. cl. lab.

Prereq.: Eligibility for Math. 150.

Not open to students with credit for 150.

Astronomy 101 and 102 form a comprehensive introduction to modern astronomy. 101 deals with the solar system and the earth as an astronomical body. Roark.

### 102 General Astronomy II U 5

(402) W. 4 cl., 1 1-hr. cl. lab.

Prereq.: 101.

Not open to students with credit for 150.

A continuation of 101 with emphasis on the stellar universe and physical astronomy. Roark.

### 150 Descriptive Astronomy U 5

(500) A, Sp. 5 cl.

Not open to students with credit for 101 and 102.

An introductory course emphasizing the place of astronomy in man's cultural and scientific development. Collins, Mitchell, and Slettebak.

### 301 Observational Astronomy U 3

Sp. 2 3-hr. labs.

Prereq.: 101, 102, or 150.

Selected intermediate level experiments and observations for the obtaining and treatment of astronomical data. Byard, Mitchell, and Slettebak.

### 601\* History of Astronomy U G 3

W. 3 cl.

Prereq.: 101-102, or 150, or permission of instructor.

Babylonian, Egyptian, Chinese, and Mayan Astronomy; Graeco-Roman period and Middle Ages; Renaissance and Reformation; modern trends in Astronomy. Keenan.

### 605†\* Introduction to Celestial Mechanics U G 3

W. 3 cl.

Prereq.: Math. 255 or 556 and Physics 113 or 232 and 233 or permission of instructor.

Application of the laws of motion to planets, satellites, and stars; the two-, three-, and N- body problems; introduction to orbit and perturbation theory. Collins.

### 611 Spherical Astronomy U G 3

W. 3 cl.

Prereq.: 101 or 150 or equiv.; Math. 152 or 254 or (538), and Physics 112 or 231.

The application of spherical trigonometry to stellar positions and motions; stellar co-ordinate systems; time; fundamental measurements of star positions. Slettebak.

### 650 Stellar Astronomy U G 4

A. 2 2-hr. cl.

Prereq.: 102 or 150; Math. 152, (538), or 254; Physics 232 and 233; or permission of instructor.

Distances, motions, luminosities, and masses of stars; the motions and distribution of stars and interstellar matter. Star clusters and galaxies. Czyzak.

### 651 Introduction to Astrophysics U G 4

W. 2 2-hr. cl.

Prereq.: Physics 551 or equiv. and Math. 255 or 556.

Study of radiation from stars and nebulae to determine the composition and physical conditions of matter in and between the stars; stellar nuclear energy sources. Czyzak.

### 652 Solar System U G 4

Sp. 2 2-hr. cl.

Prereq.: 101 or 150; Math. 152, (538), or 254; Physics 232 or 233; or permission of instructor.

The physical nature of the solar surface, planets, satellites, comets, asteroids, meteors, and diffuse matter in the solar system; Cosmogony of the solar system. Roark.

### 689†\* Astronomical Uses of Applied Mathematics U G 3

A. 2 1½-hr. cl.

Prereq.: 650 and Math. 255 or permission of instructor.

Application of numerical methods for solution of integral, differential, and linear equations of particular interest to Astronomy; aspects of statistics of particular relevance to Astronomy are also treated. Collins.

### 693 Individual Studies in Astronomy U G 1-15

(700) Su, A, W, Sp.

Prereq.: Permission of instructor.

Repeatable to a maximum of 40 cr. hrs.

Independent library or laboratory work on a special problem in observational or theoretical astronomy.

### 785 Observational Techniques I U G 3

(751) A.

Prereq.: 611 and 651 and Physics 636 and 751, or permission of instructor.

Astronomical spectroscopy. Astrometry; Photographic and photoelectric Photometry. Mitchell.

### 786 Observational Techniques II U G 3

(752) W.

Prereq.: 785.

Continuation of 785.

### 787 Observational Techniques III U G 3

(753) Sp.

Prereq.: 786.

Continuation of 786.

### Radio Astronomy Instrumentation

(See Elec. E. 715.)

### 801 Astronomy Colloquium I G 1

A. 1 cl.

Prereq.: 10 cr. hrs. each in 600 courses or higher in Astron., Physics, and Math., or permission of instructor.

Repeatable to a maximum of 8 cr. hrs.

Seminars conducted on astronomical topics of current interest; students will participate actively in the presentation and discussion of materials.



- 802 Astronomy Colloquium II** G 1  
*W. 1 cl.*  
*Prereq.: 801.*  
*Repeatable to a maximum of 8 cr. hrs.*  
 Continuation of 801.
- 803 Astronomy Colloquium III** G 1  
*Sp. 1 cl.*  
*Prereq.: 802.*  
*Repeatable to a maximum of 8 cr. hrs.*  
 Continuation of 802.
- 811\* Physical Foundations of Astronomy I** G 3  
*A. 2 1½-hr. cl.*  
*Prereq.: Physics 521, 541, 551, 551 and Math. 556 or permission of instructor.*  
 Aspects of theoretical physics of special significance to astrophysical problems, including celestial mechanics, interaction of radiation with matter, and special and general relativity. *Capriotti.*
- 812\* Physical Foundations of Astronomy II** G 3  
*W. 2 1½-hr. cl.*  
*Prereq.: 811.*  
 Continuation of 811.
- 813\* Physical Foundations of Astronomy III** G 3  
*Sp. 2 1½-hr. cl.*  
*Prereq.: 812.*  
 Continuation of 812.
- 821\* Stellar Atmospheres and Diffuse Matter in Space I** G 3  
*A. 2 1½-hr. cl.*  
*Prereq.: 651, Physics 742, 751, Math. 550, 556.*  
 Stellar classification and spectra of peculiar stars; interpretation of continuous and line spectra of stars; diffuse matter in space. Magnetohydrodynamics. *Collins and Kennan.*
- 822\* Stellar Atmospheres and Diffuse Matter in Space II** G 3  
*W. 2 1½-hr. cl.*  
*Prereq.: 821.*  
 Continuation of 821.
- 823\* Stellar Atmospheres and Diffuse Matter in Space III** G 3  
*Sp. 2 1½-hr. cl.*  
*Prereq.: 822*  
 Continuation of 822.
- 841†\* Dynamical Astronomy I** G 3  
*A. 2 1½-hr. cl.*  
*Prereq.: 651, Math. 550 and 556, Physics 715 or Math. 521 or permission of instructor.*  
 Stellar statistics and kinematics. Galactic structure; external galaxies, cosmology, and cosmogony. *Keenan, Collins, and Mitchell.*
- 842†\* Dynamical Astronomy II** G 3  
*W. 2 1½-hr. cl.*  
*Prereq.: 841.*  
 Continuation of 841.
- 843†\* Dynamical Astronomy III** G 3  
*Sp. 2 1½-hr. cl.*  
*Prereq.: 842.*  
 Continuation of 842.
- 850 Current Topics in Astronomy** G 3  
*A, W, Sp.*  
*Prereq.: 651.*  
*Repeatable to a maximum of 15 cr. hrs.*  
 Staff members and visiting lecturers will present material on their current research problems.
- 851†\* Stellar Interiors and Stellar Evolution I** G 3  
*A. 2 1½-hr. cl.*  
*Prereq.: 651, Physics 551, 742, Math. 550, 556.*  
 The equilibrium equations and physics of stellar interiors; computation of stellar models and evolutionary tracks; stellar pulsation; origin of the elements. *Collins, Capriotti, Keenan, and Czyzak.*
- 852†\* Stellar Interiors and Stellar Evolution II** G 3  
*W. 2 1½-hr. cl.*  
*Prereq.: 851.*  
 Continuation of 851.
- 853†\* Stellar Interiors and Stellar Evolution III** G 3  
*Sp. 2 1½-hr. cl.*  
*Prereq.: 852.*  
 Continuation of 852.
- 862 Radio Astronomy Theory I** G 3  
 (896) *W. 3 cl.*  
*Prereq.: 651 and Physics 734 or Elec. E. 810 or permission of instructor.*  
 Fundamental theory of radio astronomy and interpretation of basic radio observations; given in collaboration with the Department of Electrical Engineering. *Kraus and Ko.*
- 863 Radio Astronomy Theory II** G 3  
 (897) *Sp. 3 cl.*  
 Advanced theory of generation, propagation and absorption of cosmic radio waves; given in collaboration with the Department of Electrical Engineering. *Kraus and Ko.*
- 895 Interdepartmental Seminar in Radio-Astronomy** G 1-5  
*A, W, Sp.*  
 (See under *Interdepartmental Seminars.*)
- 999 Research in Astronomy and Astrophysics** G Arr.  
 (950) *Su, A, W, Sp.*  
 Research for thesis or dissertation purposes only.

## Aviation

Office: Ohio State University Airport, 3160 Case Road

**Professor Eggspuehler** (Chairman); **Associate Professor Billings**; **Assistant Professor Hubbard**; **Instructors and Lecturers.**

### 111 Introduction to Aviation U 3

(507) W. 3 cl., 1 field trip.

A comprehensive study of our air transportation system.

### 201 Primary Flight U 1

(506) Su, A, W, Sp. 5 lab.

*Prereq. or concur.: 211 and secure permission slip at University Airport prior to scheduling.*

A laboratory course provided for students to achieve greater understanding of 211.

### 211 Elements of Aviation U 4

(505) Su, A, W, Sp. 3 cl., 2 lab.

*Prereq.: Math. 116 or 150, Physics 111.*

Problems in fundamentals of flight and aircraft operation; objective studies of aviation laws and regulations.

### 401 Advanced Flight U 1-4

(600) Su, A, W, Sp. 5 lab.

*Prereq.: 201 and secure permission slip at University Airport prior to scheduling.*

*The student must register for specific studies in areas indicated below, and may register for more than one at a time.*

*Repeatable to a maximum of 4 cr. hrs.*

- Precision Flight Maneuvers
- Flight Navigational Procedures
- Performance Evaluation
- Flight Safety

### 411 Aircraft Performance U 3

(601) A. 3 cl.

*Prereq.: 211.*

Studies of airframe components, performance and design characteristics, power plants, and federal certification of aircraft equipment.

### 415 Air Traffic Control and Flight Meteorology U 3

(603) W. 3 cl.

*Prereq.: 211, Physics 120.*

Precision navigational techniques for position control, flight planning and cruise control, aids to navigation, fundamentals of meteorological analysis, and effects of weather on flight.

### 419 Analysis of Problems in Aviation Safety U 3

(605) Sp. 3 cl.

*Prereq.: 411, 415.*

Detailed analysis of standard and proposed procedures relating to safety, studies in pilot behavior, accident investigation and safety programs.

## Biochemistry

Office: 101 Vivian Hall, 2121 Fyffe Road

**Professors Serif**, **Bulen**, **Deatherage**, **Harper**, **Johnson**, **Moore**, **Moxon**, and **Snell**; **Associate Professors Behrman**, **Doskotch**, **Dougall**, and **Ives**; **Assistant Professors Beaudreau**, **Clements**, **Diamondstone**, **Mendicino**, and **Zubkoff**.

### 511 Introduction to Biological Chemistry U G 4

(610) Su, W, Sp. 3 cl.

*Prereq.: Chem. 102 or 112 or 231 and 2 qtrs. of biological science.*

An introductory course in biochemistry dealing with the molecular basis of structure and metabolism of plants, animals, and microorganisms.

### 521 Introduction to Biological Chemistry: Laboratory U G 3

(611) Su, A, Sp. 2 cl., 2 2-hr. labs.

*Prereq. or concur.: 511.*

Laboratory work to accompany 511. Assay techniques for chemical constituents and metabolic reactions of living cells.

### 531 Biochemistry of Animal Function U G 3

(620) A. 3 cl.

*Prereq.: Chem. 231 or equiv.*

Biochemical bases and animal function and nutrition.

### 541 Biochemistry of Animal Function Laboratory U G 3

(621) W. 2 3-hr. labs.

*Prereq. or concur.: 531.*

Laboratory course to accompany 531. Assay techniques for chemical constituents and metabolic reaction in animals. Biochemistry of nutritional deficiency.

### 551 Chemistry of Foods and Food Processing U G 5

(613) Sp. 3 cl., 2 3-hr. labs.

*Prereq.: Chem. 211 and 231 or equiv.*

The chemical, physical, and biological nature of foods in relation to handling, processing, packaging, quality, and consumer acceptance. *Deatherage.*

### Biochemistry

(See Chem. 661)

(Offered in cooperation with Departments of Chem., Biochem., and Phys. Chem.)

### 693 Individual Studies U G 2-5

(701) Su, A, W, Sp.

*Prereq.: 6 qtr. hrs. of biochemistry.*

### 705 General Biological Chemistry U G 5

A. 3 cl.

*Prereq.: Chem. 241, 242, 243, 244 or 251, 252, 253, 254 or equiv.; Chem. 531 recommended. 705, 707, and 709 should be taken in sequence.*

An intensive treatment of modern biochemistry. Protein structure, thermodynamics of enzyme catalyzed reactions and oxidation-reduction reactions in living systems.



**706 General Biological Chemistry U G 5 Laboratory**

W. 2 4-hr. labs.

Prereq. or concur.: 705, 706, 708, and 710 should be taken in sequence.

Laboratory to accompany 705.

**707 General Biological Chemistry U G 5**

W. 3 cl.

Prereq.: 705.

An intensive treatment of modern biochemistry. Chemistry and intermediary metabolism of lipids and carbohydrates.

**708 General Biological Chemistry U G 5 Laboratory**

Sp. 2 4-hr. labs.

Prereq.: 706.

Laboratory to accompany 707.

**709 General Biological Chemistry U G 5**

Sp. 3 cl.

Prereq.: 707.

An intensive treatment of modern biochemistry. Intermediary metabolism of proteins and nucleic acids; function of vitamins and hormones.

**710 General Biological Chemistry U G 5 Laboratory**

Su. 2 4-hr. labs.

Prereq.: 708.

Laboratory to accompany 709.

**785 Research Principles U G 2-5 and Techniques**

(701) Su, A, W, Sp.

Prereq.: Permission of instructor.

**811\* Proteins and Nucleic Acids G 3**

(807) A. 3 cl.

Prereq.: 709 or equiv.

An examination of the current research on the chemistry and metabolism of proteins and nucleic acids. *Ives.***821\* Enzymes G 3**

(808) W. cl.

Prereq.: 709 or equiv.

Advanced studies of enzymes and the mechanism of enzyme action. *Diamondstone.***831†\* Carbohydrates G 3**

(809) Sp. 3 cl.

Prereq.: 709, Chem. 635 recommended.

Advanced study of the metabolism of the carbohydrates. *Mendicino.***850 Seminar in Biological Chemistry G 2**

(804) A, W, Sp. 1 or 2 cl.

**851†\* Special Topics in Food Chemistry G 2**

(813) W. 2 cl.

Prereq.: 551, Chem. 243, 531, 532 or equiv.

Advanced study of the chemistry of foods. *Deatherage.***898 Interdepartmental Seminar G 1 in Nutrition and Food Technology**

Sp. 1 cl.

(See under Interdepartmental Seminars)

**999 Research in Biochemistry G Arr.**

(950) Su, A, W, Sp.

Research for thesis or dissertation purposes only.

**Biological Sciences**

Office: 111 Edith Cockins Hall, 1958 Neil Avenue

For course listing of the Academic Faculties of the College of Biological Sciences see:

Biochemistry  
Biology  
Biophysics  
Botany  
Entomology  
Microbiology  
Zoology

**Biology**

Office: 108 Edith Cockins Hall, 1958 Neil Avenue

Dr. Robert Menefee, Core Program Director

**001 Orientation to the College U 0 of Biological Sciences**

A, W. 1 cl.

Prereq.: Admission to College of Biological Sciences with fewer than 45 cr. hrs.

Conferences for the orientation of new students to the opportunities, services, and curricula in biological sciences.

**100 General Biology U 5**

(402) 3 cl., 2 lab. hrs. (unscheduled)

Not open to students with credit in Biol. 102.

An introduction to the biological sciences emphasizing the important concepts and principles which tend to unify the study of life at various levels of organization.

**101 General Biology U 5**

Su, A, W, Sp. 3 cl., 2-hr. lab.

Prereq.: 100.

Further development of the biological concepts and principles introduced in 100 with emphasis upon the molecular and cellular levels of organization.

**130 Principles of Heredity U 5**

(403) A, W, Sp. 5 cl.

Prereq.: 100.

Not open to majors in basic biological sciences.

A general course in principles of heredity, emphasizing transmission genetics. *Plaine.*

- 299 Biological Sciences Honors Colloquium** U 1-5  
*Su, A, W, Sp.*  
*Prereq.: Participation in the Honors Program of College of Biological Sciences or permission of instructor.*  
*Repeatable to a maximum of 10 cr. hrs.*  
 Discussion of the rationale and instrumentation of specific fields of biological research. Topics vary quarterly.
- 410 Introduction of Ecology** U 5  
 (505) *A, W. 5 cl., two Saturday field trips.*  
*Prereq.: Bot. 100 and 101, or 102, Zool. 101.*  
 An introduction to biotic communities, inter-relations of a community with its physical environment, and the application of ecological principles to human affairs. *Colinvaux.*
- 420 Evolution** U 5  
 (509) *A, Sp. 5 cl.*  
*Prereq.: Bot. 100 and 101, or 102, Zool. 101.*  
 The principles of organic evolution. Demonstrations and discussions of the facts and theories underlying the evolution of man and other living things. *Tidd.*
- 630 Genetics** U G 5  
 (604) *A, W. 5 cl.*  
*Prereq.: 100, Zool. 101 and Bot. 102 or equiv., Math. 116 or equiv.*  
 A fundamental study of transmission, physiological and evolutionary genetics, emphasizing integrating principles. *House.*
- 631 The Cytological Basis of Genetics** U G 5  
 (618) *W. 2 cl., 3 2-hr. lab.*  
*Prereq.: 630 or equiv.*  
 Documentation of the correlation between genetic principles and chromosome behavior by studying the mitotic and meiotic cells of several organisms with oil immersion microscopy. *Paddock.*
- 640 Cell Biology** U G 5  
 (617) *W. 3 cl., 1 4-hr. lab.*  
*Prereq.: 100, Bot. 102, Zool. 101, 5 cr. hrs. organic chem., 10 cr. hrs. biological science in courses 300 level or higher, and 5 additional cr. hrs. of chem. or biological science in courses 300 level or higher.*  
 A study of subcellular structure and metabolism emphasizing their involvement in energy and information flow. *Byers, Dougall, and Parrish.*
- 650 Analysis and Interpretation of Biological Data I** U G 5  
 (630) *A, Sp. 4 cl., 1 2-hr. lab.*  
*Prereq.: Math. 150 or equiv. and 15 cr. hrs. of 300 level or higher courses in a department of College of Agriculture and Home Economics or in a department of Biological Sciences.*  
 Methods of analyzing biological data including: sampling, descriptive statistics, distributions, group comparisons, statistical inference, one-way and nested analysis of variance and linear regression and correlation. *Skavaril.*
- 651 Analysis and Interpretation of Biological Data II** U G 5  
*W. 4 cl., 1 2-hr. lab.*  
*Prereq.: 650.*  
 Methods used in analyzing data classified in two or more ways: Latin-square, split-plot and factorial designs, analysis of covariance, data transformations, multiple regression and least-squares. *Harvey.*
- 670 Radiation Biology** U G 5  
 (699) *Su.*  
*Prereq.: High-school teacher status and Zool. 101 or equiv., Physics 514 or concur., and 10 cr. hrs. in general chem. and physics.*  
*(N.S.F. Summer Institute students only.)*  
 A study of the principles of radiation biology and their application to high school and college teaching. *Burley.*
- 730\* Cytogenetics** U G 3 or 5  
 (740) *Sp. 3 cl., 2 2-hr. lab.*  
*Prereq.: 630 and 631.*  
 Origin, transmissibility, and effects of chromosomal aberrations; their usefulness in practical breeding and in attacks on fundamental cytogenic problems. *Paddock.*
- 794 Honors Course** U G 1-5  
*Su, A, W, Sp. 1 cl.*  
*Prereq.: Enrollment in Honors Program or graduate status or permission of Honors Committee.*  
*Repeatable to a maximum of 15 cr. hrs.*  
 A program of reading and research for each student with individual conferences, reports, and honors thesis.
- 810† Ecological Investigations of Biotic Areas of North America** G 8  
 (804) *Su. (1st term).*  
*Prereq.: Bot. 620 or Zool. 650 or 661, 20 additional graduate cr. hrs. in biological science and permission of instructor.*  
*Fee of \$145 for travel and subsistence.*  
 Full time of the student will be required traveling and living away from the campus. Intensive field work in a variety of environments will involve both supervised and independent study.
- 830\* Physiological Genetics** G 5  
*Sp. 5 cl.*  
*Prereq.: 1 qtr. each of physiol., embryol., and biochem.*  
 A consideration of the theoretical and experimental aspects of physiological genetics, pertaining to the concept of the gene, its biochemical nature, replication, and mutation. *Plaine.*
- 831\* The Nature of Gene Action** G 5  
*Sp. 5 cl.*  
*Prereq.: 1 qtr. each of physiol., embryol., and biochem.*  
 A study of the action of genes at all levels of expression with special emphasis on the role of genes in developmental processes. *House.*
- 832 Mathematical Genetics** G 5  
 (816) *Sp. 4 cl., 2-hr. lab.*  
*Prereq.: 30 cr. hrs. in genetics, math., and statistics.*  
 The construction of mathematical models, use of path coefficients, generation matrices, least-squares and maximum likelihood methods for estimating genetic parameters and breeding values in quantitative genetics. *Harvey.*
- 860 Principles of Systematics** G 3  
 (817) *A. 2 cl., 2 hr. lab.*  
*Prereq.: 15 cr. hrs. of zool. or entom. at or above the 600 level.*  
 A study of the principles and techniques used in the identification, classification, and nomenclature of organisms. *Valentine.*



## Biophysics

Office: 200 Lord Hall, 124 West 17th Avenue

Professors Lipetz, Blackwell, Bozler, and Van Winkle;  
Associate Professors Hollander, McConnell, Smith, and  
Stow.

### Principles of Biophysics

(See under Physiol. 645)

### Radiation Biophysics

(See under Physiol. 846)

### Physical Instrumentation for Biologists

(See under Physiol. 848)

### 500 Introduction to Biophysics U 5

W. 5 cl.

Prereq.: 1 yr. physics, 1 yr. general chem., 1  
qtr. biol.

An introduction to the attitudes and principles which  
characterize the physico-chemical understanding of biol-  
ogical systems; examples of current biophysical research.  
Lipetz.

### 610 Introductory Photobiology U G 5

W. 5 cl.

Prereq.: Chem. 121, 122, 123 and 231, 232, and  
permission of instructor.

A topical course in photobiological reactions for under-  
graduates or for graduate students not enrolled in the  
Photobiology program. McConnell.

### 700 Seminar in Biophysics U G 1

A, W, Sp. 1 cl.

Prereq.: Permission of instructor.

Repeatable to a maximum of 9 cr. hrs.

### 702 Advanced Experimental Methods in Biophysics U G 1-3

A, W, Sp.

Prereq.: Permission of instructor.

Repeatable to a maximum of 12 cr. hrs.

### 705 Psychophysical Measurement U G 5

A. 4 cl., 1 2-hr. lab.

Prereq.: Permission of instructor.

A systematic survey of methods used in establishing re-  
lations between physical stimulation and sensory response  
in man; their use in study of vision and audition. Black-  
well and Smith.

### 710 Sensory Psychophysics U G 5

W. 4 cl., 1 2-hr. lab.

Prereq.: Permission of instructor.

Principle input-output characteristics of human sensory  
systems, primarily vision and audition, as revealed by  
psychophysical measurement methods, and an evaluation  
of theoretical models used. Blackwell and Smith.

### 715 Sensory Electrophysiology U G 5

A. 4 cl., 1 2-hr. lab.

Prereq.: 1 yr. physics, 1 yr. general chem., 1  
course in animal biol., or permission of in-  
structor.

Fundamental techniques of electrophysiology and func-  
tional arrangement of the sensory receptors and associ-  
ated nerve pathways; the visual system is considered in  
detail as an example. Lipetz and Hollander.

### 720 Biocybernetics U G 5

Sp. 5 cl.

Prereq.: Math. 255, Physics 233, and permission  
of instructor.

Physical models of organisms: mass energy and infor-  
mation flow; non-linear oscillators; linear and non-linear  
control systems; adaptive systems; control system analy-  
sis for biologists. Lipetz.

### 793 Individual Studies in Biophysics U G 1-5

(701) A, W, Sp.

Prereq.: Permission of instructor.

Repeatable to a maximum of 10 cr. hrs.

### 800 Advanced Topics in Biophysics G 3

A, W, Sp.

Prereq.: Permission of instructor.

Repeatable to a maximum of 18 cr. hrs.

### 805 Advanced Sensory Psychophysics G 5

Sp. 4 cl., 1 2-hr. lab.

Prereq.: 610, 705, 710, 715 or permission of in-  
structor.

Input-output characteristics of human sensory systems,  
primarily vision and audition, for psychophysical and  
electrophysiological measurements and data on energy  
conversion within appropriate sensory cells. Blackwell and  
Smith.

### 810 Systems Bioelectricity G 5

A. 5 cl.

Prereq.: 715, Math. 152.

The principles of organization of neurons into net-  
works supplying the information handling and control  
functions needed for the integration and survival of the  
animal. Lipetz.

### 999 Research in Biophysics G Arr.

(950) A, W, Sp.

Research for thesis and dissertation purposes only.

## Biostatistics

Office: 112 Mathematics Building, 231 West 18th Avenue

Professors Harvey, Keller, Rustagi, and Whitney; Assis-  
tant Professors Allaire and Srivastava.

### 601 Stochastic Processes in the Biological Sciences U G 3

A. 3 cl.

Prereq.: Math. 520 and at least 10 cr. hrs. in  
Biol.

Introduction to discrete stochastic processes, random  
walk, Markov Chains, birth and death processes, epi-  
demic process, processes for competing among species,  
diffusion processes, applications.

**605 Population Dynamics U G 3***W. 3 cl.**Prereq.: Math. 521.*

Study of birth, death, and growth process, use of rates and ratios, force of mortality, competing risks, selected epidemiological problems.

**610 Statistical Bioassay I U G 3***Sp.**Prereq.: Math. 523 or 521, and Pharmacol. 600; or permission of instructor.*

Direct assays, dose-response relationships, parallel line and slope ratio assay, special statistical designs in assay, Bayesian bioassay; examples.

**611† Statistical Bioassay II U G 3***Sp. 3 cl.**Prereq.: 610.*

Continuation of 610.

**616 Computer Applications in the Biomedical Sciences U G 5***Su.**Prereq.: Permission of instructor.*

Introduction to computer programming, languages such as Fortran, Algo, Cobol; packaged statistical programs; medical applications of computers; differential diagnosis, radiation treatment, dose planning, electrocardiogram analysis.

**800 Advanced Topics in Biostatistics I G 2-5***A.**Prereq.: Permission of instructor.**Repeatable to a maximum of 20 cr. hrs.*

Topics from current research in Biostatistics.

**801 Advanced Topics in Biostatistics II G 2-5***W.**Prereq.: Permission of instructor.**Repeatable to a maximum of 20 cr. hrs.*

Continuation of 800.

**802 Advanced Topics in Biostatistics III G 2-5***Sp.**Prereq.: Permission of instructor.**Repeatable to a maximum of 20 cr. hrs.*

Continuation of 801.

**999 Research in Biostatistics G 2-15***Su, A, W, Sp.**Repeatable.*

Research for dissertation purposes only.

**Botany**

Office: 102 Botany and Zoology Building, 1735 Neil Avenue

Professors Swanson, Alexander, Allison, Blaydes, Bohning, Diller, Ellett, Fisher, Janson, Kriebel, Leben, Meyer, Schmitthenner, Schopf, Taft, and Williams; Associate Professors Bendixen, Burley, Dougall, Giesy, Gilbert, Herr, Paddock, Partyka, Popham, Rudolph, Schmitt, Weishaupt, and Zabka; Assistant Professors Bart, Bradfute, L. Colinvaux, Decker, Gordon, T. Johnson, Koob, Platt, Snyder, Stuckey, and Troxel.

**100 General Botany U 5***(401) A, W, Sp. 5 cl.**Not open to students with credit for 102 or 500.*

An observation and discussion course in basic processes and structures of plants, their relation to the environment, and their importance to other organisms, especially man.

**101 General Botany U 5***(402) Su, A, W, Sp. 5 cl.**Prereq.: 100.*

Reproduction, heredity, variation and evolution in the various plant groups; non-green plants; plant distribution; relation of plants to man and conservation.

**102 General Botany U 5***(403) Su, A, W, Sp.**Prereq.: Biol. 102.**Not open to students with credit for 100 or 500.*

An observation and discussion course with emphasis on the structure, processes, and reproduction of the seed plants.

**410 Local Flora U 5***(406) Su, Sp. 4 2-hr. cl.; several Saturday field trips.**Prereq.: 101, or 102 or 500.*

A laboratory, field and discussion course in identifying common Ohio plants; emphasis on taxonomic principles, use of keys and manuals, and field recognition of plants. Fisher, Stuckey, and Weishaupt.

**440 The Plant Kingdom U 5***Sp. 5 cl.**Prereq.: 101 or 102 or 500.*

Evolutionary sequences in living representatives of the great plant groups; emphasis on forms especially significant to man. Blaydes.

**500 Basic Concepts in Botany U G 5***(672) A, W, Sp.**Prereq.: 10 cr. hrs. Chem.**Not open to students with credit for 100 or 102.**Graduate credit only to participants in the Academic Year Institute.*

A course in the basic concepts of botany for advanced students with a fundamental knowledge of chemistry. Taft.

**610 Field Botany U G 4***(664) Su. (1st term).**Prereq.: 101 or 102 or 500, 15 additional cr. hrs. in Biol. Sc.**Given only at Franz Theodore Stone Laboratory.*



Collection, preservation, field and laboratory identification, and local distribution of plants of the major groups. *Fisher and Stuckey.*

## 611 Higher Aquatic Plants U G 4

(669) Su. (2nd term).

Prereq.: 101 or 102 or 500, 15 additional cr. hrs. in Biol. Sc.

Given only at Franz Theodore Stone Laboratory.

The aquatic plants of the Lake Erie region other than the algae; field and laboratory work on their identification and ecological relation. *Fisher and Stuckey.*

## 612 Taxonomy of Vascular Plants U G 5

(673) A. 4 2-hr. lab. several Saturday field trips.

Prereq.: 410 or 610, 10 additional cr. hrs. in Biol. Sc.

A laboratory, field, and discussion course concerning the classification of vascular plants; emphasis on taxonomic principles, systems of classification, family characteristics and relationships. *Fisher and Stuckey.*

## 620 Basic Principles of Plant Ecology U G 5

(601) A, Sp. 3 cl., 1 3-hr. lab., several Saturday field trips, 1 3-day field trip.

Prereq.: 101 or 102 or 500, 15 additional cr. hrs. in Biol. Sc.

The establishment, development, succession, and dynamics of plant communities and their inter-relations with historic, climatic, soil, and biotic factors. *Gilbert.*

## 621 Field Plant Ecology U G 4

(674) Su. (2nd term).

Prereq.: 101 or 102 or 500, 15 additional cr. hrs. in Biol. Sc.

Given only at Franz Theodore Stone Laboratory.

Principles of plant ecology as exemplified by the study of aquatic and terrestrial habitats; emphasis on field work with supplementary lectures and laboratory work.

## 630 Plant Physiology U G 3 or 5

(605) Su, A, W. 3 cl., 2 2-hr. labs.

Prereq.: 101 or 102 or 500; 10 cr. hrs. Chem.

A fundamental course in plant physiology; solutions, colloidal systems, diffusion, osmotic quantities, transpiration, absorption and translocation of water, enzymes, photosynthesis. *Burley, Meyer, Swanson, and Zabka.*

## 631 Plant Physiology U G 3 or 5

(606) W, Sp. 3 cl., 2 2-hr. lab.

Prereq. or concur.: 630.

A continuation of 630; photosynthesis, respiration, and metabolic synthesis, absorption and utilization of mineral salts, digestion, translocation of solutes, growth, reproduction, dormancy. *Burley, Meyer, Swanson, and Zabka.*

## 632 Physiology of Aquatic Plants U G 4

(667) Su. (2nd term).

Prereq.: 101 or 102 or 500 or equiv. and 20 cr. hrs. of Chem.

Given only at Franz Theodore Stone Laboratory.

Lectures, discussions, laboratory and field work on basic topics in the physiology of aquatic plants. *Burley.*

## 640 Bryophytes, Pteridophytes, and Gymnosperms U G 5

(613) W. 4 2-hr. lab. cl.

Prereq.: 101 or 102 or 500, 15 additional cr. hrs. in Biol. Sc.

Comparative structures and life histories of liverworts, mosses, ferns, conifers. Heritable variations within and among these groups during geologic time. World distribution, past and present.

## 641 Morphology of the Angiosperms U G 5

(614) A. 4 2-hr. cl.

Prereq.: 101 or 102 or 500, 15 additional cr. hrs. in Biol. Sc.

Reproductive mechanisms and processes in angiosperms with application to problems in genetics, plant breeding, and crop production. *Blaydes.*

## 642 Plant Microtechnic U G 5

(615) W. 2 cl., 3 2-hr. lab.

Prereq.: 101 or 102 or 500, 15 additional cr. hrs. in Biol. Sc.

Principles and methods of preparing permanent plant tissue microscopic preparations; student has opportunity to prepare a personal slide collection suitable for teaching or research. *Blaydes.*

## 643 Development Plant Anatomy U G 5

(640) W, Sp. 4 2-hr. cl.

Prereq.: 101 or 102 or 500, 15 additional cr. hrs. in Biol. Sc.

The initiation and development of tissues and organs of vascular plants. *Popham.*

## 644 Algae U G 4 or 5

(665) Sp. 4 2-hr. cl.

Prereq.: 101 or 102 or 500, 15 additional cr. hrs. in Biol. Sc.

In Summer Qtr. given only at Franz Theodore Stone Laboratory.

A general course covering identification, growth, reproduction, evolution, distribution and economic importance of the algae. *Taft.*

## 650 Plant Genetics U G 5

(635) A. 3 cl., 2 2-hr. lab.

Prereq.: 101 or 102 or 500, Biol. 630, 10 additional cr. hrs. in Biol. Sc.

Effects of lethals, linkage, heterogony, introgression, polyploidy, self-incompatibility, and cytoplasm; laboratory experience with aceto-carmin smears, colchicine, progeny tests, random number tables, and herbarium specimens. *Paddock.*

## 660 Mycology U G 5

(653) Su, A. 3 cl., 2 2-hr. lab.

Prereq.: 101 or 102 or 500, 15 additional cr. hrs. in Biol. Sc.

A study of structures, life histories, and classification of the fungi. *Ellett, Rudolph, and Schmitt.*

## 661† Industrial Mycology U G 3

(655) Sp. 2 cl., 1 2-hr. lab

Prereq.: Chem. 231 and 232, 10 cr. hrs. of Biol. Sc. at the 300 level or higher.

The relation of fungi, especially saprophytic fungi, to human affairs, with emphasis upon their actual and potential applications in industry.

**662 Medical Mycology**

(658)

The fungi pathogenic to man, their structure and distribution, and the importance of human mycotic diseases. *Schmitt*.

662.01 Lecture and Lab. **U G 5**  
W. 3 cl., 2 2-hr. lab.

Prereq.: Microbiol. 509, 607 and 10 cr. hrs. Biol. Sc.

662.02 Lecture **U G 3**  
W. 3 cl.

Prereq.: Microbiol. 509, 607 and 10 cr. hrs. Biol. Sc. and permission of instructor.

**663 Aquatic Mycology****U G 4**

(670) Su. (2nd term).

Prereq.: 101 or 102 or 500, 15 additional cr. hrs. in Biol. Sc.

A lecture, laboratory, and field course designed to acquaint the student with the fungi found in aquatic habitats including soil water. *Schmitt*.

a. Su. (2nd term). Given only at Franz Theodore Stone Laboratory during odd numbered yrs.

b. Sp. Given only at Columbus during even numbered yrs.

**693 Individual Studies****U G 1-5**

(701) Su, A, W, Sp.

Prereq.: 101 or 102 or 500, 15 additional cr. hrs. in Biol. Sc.

Problems may be selected in the fields of taxonomy, morphology, anatomy, phycology, physiology, ecology, genetics, cytology, mycology, or lichenology.

**694 Special Group Studies in Botany****U G 1-3**

A, W, Sp.

Prereq.: Permission of instructor.

Repeatable to a maximum of 10 cr. hrs.

Group study of special topics in Botany.

**720 Ecological Relations of World Vegetation****U G 5**

(602) Sp. 3 cl., 2 3-hr. lab., 1 4-day field trip.

Prereq.: 620.

A consideration of the distribution pattern and structure of the vegetation of the world with emphasis on North America.

**800\* History of Botany****G 3**

(860) Sp. 3 cl.

Prereq.: 30 cr. hrs. in Biol. Sc.

A brief survey of the fundamental discoveries that have led to modern concepts in plant science. *Rudolph*.

**809 Botanical Colloquium****G 1**

(810) A, W, Sp.

Repeatable.

**810\* Experimental Taxonomy****G 5**

(757) A. 3 cl., 2 2-hr. lab., several Saturday field trips.

Prereq.: 410 or 610 and Biol. 630.

Biosystematic categories, population analysis of mass collections, individual variations, hybridization, and introgression are studied in relation to the methods and materials of experimental taxonomic research. *Fisher*.

**819 Seminar in Plant Taxonomy****G 2**

(835) A, W, Sp.

Prereq.: Permission of instructor.

Repeatable.

**829 Seminar in Plant Ecology****G 2**

(825) A, W, Sp.

Prereq.: 620 and permission of instructor.

Repeatable.

**830 Advanced Plant Physiology Laboratory****G 3**

(725) A. 6 lab. hrs.

Prereq.: 630 and 631, 10 cr. hrs. in organic chem. or biochem.; 10 additional cr. hrs., biological science.

Selected research techniques dealing primarily with respiration, photosynthesis, and associated metabolic phenomena. *Burley, Dougall, Swanson, and Zabka*.

**831 Advanced Plant Physiology Laboratory****G 3**

(730) Sp. 6 lab. hrs.

Prereq.: 630 and 631, 10 cr. hrs. organic chem. or biochem.; 10 additional cr. hrs. biological science.

Selected research techniques dealing primarily with solution culture, sterile tissue culture, hormone assay, ion uptake, osmotic relations, and photobiological reactions. *Burley, Dougall, Swanson, and Zabka*.

**832 Advanced Plant Physiology: Metabolism****G 3**

(734) A. 3 cl.

Prereq.: 630 and 631, Biochem. 511 and 521, or Chem. 531 and 532.

Advanced study of selected topics, mainly respiration, metabolic syntheses, absorption, and utilization of mineral salts, metabolism of growth substances, photosynthesis, and translocation. *Dougall and Platt*.

**833 Advanced Plant Physiology: Growth****G 3**

(735) W. 3 cl.

Prereq.: 630 and 631, 10 cr. hrs. organic or biochem., 10 additional cr. hrs. Biol. Sc.

The physiology of growth and reproduction. Special attention given to the interrelated effects of internal and external factors on these processes. *Meyer and Swanson*.

**834 Advanced Plant Physiology: Water and Solute Relations****G 3**

Sp. 3 cl.

Prereq.: 630, 631, 10 cr. hrs. organic chem. or biochem., 10 additional cr. hrs. biological science.

Osmotic relations, mechanisms of water and solute uptake and transport; salt metabolism, drought and salt tolerance. *Swanson*.

**839 Seminar in Plant Physiology****G 1**

(820) A, W, Sp.

Prereq.: Permission of instructor.

Repeatable.

*Burley, Meyer, Platt, Swanson, and Zabka*.

**849† Seminar in Lichenology****G 2**

(830) Sp. 2 cl.

Prereq.: Permission of instructor.

Repeatable.

Current problems of lichen symbiosis, morphology, taxonomy, ecology, and physiology. *Rudolph*.



- 860 Advanced Mycology G 3**  
(754) *Sp. 3 2-hr. lab.*  
*Prereq.: 660.*

Advanced detailed study of specific groups of fungi, with emphasis on their morphology, cytology, and genetics. *Ellett, Gray, Rudolph, and Schmitt.*

- 861 Physiology of Fungi G 5**  
(718) *W. 3 cl., 2 2-hr. lab.*  
*Prereq.: 630, 631, 660, 10 cr. hrs. organic chem. or biochem.*

The physiology of the nutrition, growth, and reproduction of fungi.

- 869 Seminar in Mycology G 2**  
*A, W, Sp. 1 2-hr. cl. arr.*  
*Prereq.: Permission of instructor.*  
*Repeatable.*  
*Ellett, Rudolph, and Schmitt.*

- 896 Interdepartmental Seminar G 1-3**  
**in Polar and Alpine Studies**  
*Sp.*  
*(See under Interdepartmental Seminar.)*

- 897 Interdepartmental Seminar G 1**  
**in Natural Resources**  
*A, W, Sp.*  
*(See under Interdepartmental Seminars.)*

- 898 Interdepartmental Seminar G 1**  
**in Nutrition and Food Technology**  
*Sp.*  
*(See under Interdepartmental Seminars.)*

- 999 Research in Botany G Arr.**  
(950) *Su, A, W, Sp.*  
Research for thesis and dissertation purposes only.

## Business Organization

Office: 356 Hagerty Hall, 1775 South College Road

**Professors** Miner (Chairman), Abramowitz, Bartels, Beckman (Emeritus), Bickelhaupt, Bowers, Brunner, Craig (Emeritus), Cullman, Davidson, J. H. Davis, R. C. Davis (Emeritus), Dice (Emeritus), Donaldson, Engel, Hicks, Hoagland (Emeritus), Howland, Jucius (Emeritus), Kindig, Pfahl, Powell, Sherman, Stogdill, and Stone; **Adjunct Professor** Healey; **Associate Professors** Allen, Behling, Cordell (Emeritus), Doody, Foster, Howell, L'Esperance, Miljus, Riddle (Emeritus), Smith, Stern, and Wilkins; **Assistant Professors** Blackwell, Robbitt, Close, Cole, Gibson, Grabner, Hardy, Harvey, Knapp, Kollat, Krouse, McNaul, Mullins Rapp Roberson, and Vitt.

- 220 Personal Finance U 3**  
(551) *A, W, Sp. 3 cl.*  
*Prereq.: 2nd yr. standing.*  
*Not open to students in College of Administrative Science majoring in either Acc. or Finance.*

Budgeting, credit, borrowing money, bank relationships, savings, insurance, real estate, stocks and bonds, income taxes, social security, annuities, wills, trusts, estates, and taxes. *Donaldson, Pfahl, and Foster.*

- 301 Secretarial Work U 5**  
(510) *A. 5 cl.*  
*Prereq.: Econ. 201 or equiv. and Ed. 011 and 013 or equiv.*

Theory and practice of secretarial fundamentals; duties, responsibilities, procedures, and techniques of secretarial work. *Hicks.*

- 490 Industrial Statistics U 3**  
(615) *Su, A, W, Sp. 3 cl.*  
*Prereq.: Econ. 442 or equiv.*

The application of statistical methods to the design and analysis of experiments, with a view to planning, organizing, and controlling the output of industry. *Abramowitz, Black, and Kindig.*

- 500 Principles of Management U G 3**  
(676) *Su, A, W, Sp. 3 cl.*  
*Prereq.: Econ. 201 or 402 or equiv.*

An intensive examination of the basic fundamentals of organization and management underlying the solution of management problems. *Hicks and Staff.*

- 510 Legal Environment of Business U 4**  
(621) *Su, A, W, Sp. 4 cl.*  
*Prereq.: 3rd yr. standing.*

American legal institutions and sources of law; analysis of basic contractual concepts; aspects of corporation law and public law. *Howell, Wilkins, and Gibson.*

- 601\* Business Statistics U G 4**  
(614) *W. 3 cl., 1 2-hr. lab.*  
*Prereq.: Econ. 442 or equiv. or Soc. Work 380 or equiv.*

Price and production indexes; analysis of time series; linear correlation applied to economic and business problems.

- 611 Business Law: Agency and Partnerships U G 3**  
(623) *W. 3 cl.*  
*Prereq.: 510 or equiv.*

Legal principles and cases analyzed relating to representation of principals by agents, and to the formation, operation, and dissolution of partnerships.

- 612 Business Law: Commercial Paper and Sales U G 3**  
(625) *A, W, Sp. 3 cl.*  
*Prereq.: 510 or equiv.*

Analysis of cases and provisions of the Uniform Commercial Code relating to commercial paper, including checks and notes; sales of personal property and related transactions. *Howell and Gibson.*

- 613 Business Law: Corporations U G 3**  
(627) *A, W, Sp. 3 cl.*  
*Prereq.: 510 or equiv.*

Analysis of legal principles and cases governing the formation, operation, and dissolution of corporations. *Wilkins.*

- 620 Corporate Finance U G 4**  
(650) *Su, A, W, Sp. 4 cl.*  
*Prereq.: Econ. 201 or 402 or equiv. and Acc. 201 or 212 or equiv.*

Forms of business organization; corporate securities, financing through securities; sources and management of working capital; administration of income; expansion and combination; reorganization, receivership, and dissolution. *Donaldson and Staff.*

- 630 Industrial Production** U G 4  
(677) Su, A, W, Sp. 4 cl.  
Prereq.: 490 or equiv.

Demand-capacity analysis including product factors; physical factors of design, plant, location, and materials handling; process factors of quality control and maintenance. *Abramowitz and Staff.*

- 640 Insurance and Risk** U G 4  
(618) Su, A, W, Sp. 4 cl.  
Prereq.: Econ. 201 or 402 or equiv.

Principles and practices of insurance and risk management, including personal, business, and social viewpoints in regard to insurance for life, health, property, and liability risks. *Bickelhaupt, Bobbitt, and Close.*

- 650 Marketing** U G 4  
(700) Su, A, W, Sp. 4 cl.  
Prereq.: Econ. 201 or 402 or equiv.

Critical survey of field of marketing. Structure, functions, policies, costs, and problems analyzed from consumer and other viewpoints. Emphasis on principles, trends, and quantitative expression. *Davidson and Staff.*

- 660 Personnel Management: Fundamentals** U G 3  
(686) Su, A, W, Sp. 3 cl.  
Prereq.: Econ. 402 or equiv.

Principles and practices of line and staff executives in managing the procurement, development, maintenance, and utilization of an effective and satisfied working force. *Behling and Miljus.*

- 670 Real Estate and Urban Land Economics** U G 4  
(642) A, W, Sp. 4 cl.  
Prereq.: Econ. 201 or 402 or equiv.

Introduction to investment decision making in land resource utilization; considers factors such as real estate markets, public influence, legal principles, financing, and administration. *Smith and Stone.*

- 693 Special Problems** U G 1-3  
(799) Su, A, W, Sp.  
Prereq.: Graduate or senior standing, or a 2.5 point average in the field of specialization, and permission of instructor.  
Repeatable.

- 700 Management Processes: Planning and Controlling** U G 5  
Su, A, W, Sp. 5 cl.  
Prereq.: 490, 620, 630, 650 or equiv.

Business goals and policies; phases of decision making; analysis of alternatives; establishing, evaluating, and controlling plans of action.

- 701 Management Processes: Organizing** U G 4  
Su, A, W, Sp. 4 cl.  
Prereq.: 490, 620, 630, 650 or equiv.

Establishing, maintaining, and controlling resources to accomplish business objectives; authority and responsibility relationships; formal and informal organizational arrangements; structure of business systems and procedures.

- 702 Management Processes: Motivating and Directing** U G 3  
(682) Su, A, W, Sp. 3 cl.  
Prereq.: 490, 620, 630, 650 or equiv.

Supervising, directing, motivating, coordinating, and controlling manpower in the business organization. *Miljus and Behling.*

- 720 Corporation Finance** U G 3  
(730) A, W, Sp. 3 cl.  
Prereq.: Permission of instructor.  
Open only to students preparing for graduate work in business.

A critical study of the field of corporation finance from an economic point of view. *Foster.*

- 721 Managerial Finance** U G 3  
(651) Su, A, Sp. 3 cl.  
Prereq.: 700 or equiv.

Financial management of business units with emphasis on finance organization structure, collecting and using financial data, judging profitability, liquidity, sources of capital, internal financial operations. *Pfahl, Stone, and Foster.*

- 722 Investment Management** U G 3  
(655) Su, A, W, Sp. 3 cl.  
Prereq.: 620 or equiv.

Investment objectives; types of investments and their relative merits; security prices and yields; investment programs; and taxes. *Donaldson and Stone.*

- 723 Investment Analysis** U G 3  
(657) W, Sp. 3 cl.  
Prereq.: 722 or equiv.

Methods of investment analysis; analysis of investment data; principles and standards for selection of specific investments; portfolio management. *Pfahl and Stone.*

- 724 The Stock Market** U G 3  
(660) A, Sp. 3 cl.  
Prereq.: 620 or equiv.

Practices, procedures, and regulations relating to listing and to buying and selling securities in the organized security markets. *Donaldson.*

- 726 Financial Institutions** U G 4  
(674) A, W. 4 cl.  
Prereq.: 620 and Econ. 520 or equiv.

Structure, operations, regulation, and economic significance of financial institutions with emphasis on savings, trust, mortgage lending, consumer lending, regulatory, and investment banking institutions. *Foster and Cole.*

- 727 Management of Financial Institutions** U G 3  
(670) W, Sp. 3 cl.  
Prereq.: 620, 726, and Econ. 520 or equiv.

Examination of the objectives, functions, policies, organization, practices, and procedures of financial institutions from the viewpoint of the institutional management. *Rapp.*

- 729 Cases in Managerial Finance** U G 3  
(652) W, Sp. 3 cl.  
Prereq.: 721 or equiv.

Analysis of qualitative and quantitative financial factors involved in managerial decisions in actual business cases. *Donaldson and Pfahl.*



**731 Industrial Production Management I U G 4**

(685) Su, A, W, Sp. 4 cl.

Prereq.: 700, 701, 702, or equiv.

Manufacturing planning, forecasting, capacity analysis, inventory analysis, make or buy decisions, purchasing, equipment analysis. *Hardy*.

**732 Industrial Production Management II U G 4**

(687) Su, A, W, Sp. 4 cl.

Prereq.: 731 or equiv.

Scheduling and control aspects of manufacturing, production scheduling, quality control, work standards, cost control, variance analysis. *Vitt*.

**734 Office Organization and Management U G 3**

(691) A, Sp. 3 cl.

Prereq.: 500 or equiv.

The planning, organizing, and controlling of office work; office standards, business forms, selection of business machines, analysis of office methods. *Hicks*.

**739 Problems in Industrial Production U G 3**

(698) Sp. 3 cl.

Prereq.: 731, 732 or equiv.

Case approach to problem-solving thought in the area of industrial organization and management. *Abramowitz*.

**741 Personal Insurance Planning U G 4**

(760) A. 4 cl.

Prereq.: 640 or equiv.

Analysis of personal consumer needs for life, health, property, and liability insurance; development of contracts, legal aspects, rates, and the technique of estate programming. *Bickelhaupt*.

**743 Insurance Operations and Regulations U G 4**

(761) W. 4 cl.

Prereq.: 640 or equiv.

Examination of the major functions of insurers of all types; product development, underwriting, rating, re-insurance, marketing systems, loss payment, financial analysis, management, and regulation. *Bickelhaupt*.

**749 Business Risk Management U G 4**

(764) W, Sp. 4 cl.

Prereq.: 640 or equiv.

Development of insurance and risk management programs for business consumers; risk identification, evaluation and treatment; all lines, including group insurance, business life insurance, and pensions. *Bickelhaupt*.

**750 Marketing U G 3**

(729) A, W, Sp. 3 cl.

Prereq.: Permission of instructor.

Open only to students preparing for graduate work in business.

A critical study of the field of marketing institutions and functions primarily from a social point of view. *J. H. Davis and Doody*.

**751 Managerial Marketing U G 6**

(702) Su, A, W, Sp. 3 2-hr. cl.

Prereq.: 700, 701, 702 or equiv.

Marketing policies and strategy; organization, demand analysis, product planning, pricing, physical distribution, selling, advertising, sales promotion, and credit from a managerial viewpoint. *J. H. Davis and Stern*.

**753 Retailing U G 4**

(705) A, W, Sp. 4 cl.

Prereq.: 650 or equiv.

Principles and methods of management as applied to retailing, including location, organization, personnel, buying, inventory control, selling and advertising, services, expenses, and profits. *Davidson, Doody, and Kollat*.

**754 Wholesaling U G 4**

(706) A, Sp. 4 cl.

Prereq.: 650 or equiv.

Nature, history, institutional compositions, competitive factors, economic and government aspects; scientific management of wholesale establishments, including functions of sales, internal operations, and operating expense control. *Davidson and J. H. Davis*.

**755 Principles of Advertising U G 4**

(716) A, W, Sp. 4 cl.

Prereq.: 650 or equiv.

Management of advertising by clients and agencies. Budgeting, research, media selection, preparation of advertisements, economic and social effects of advertising. *Cullman and Engel*.

**756 Credits and Collections U G 4**

(709) A, W, Sp. 4 cl.

Prereq.: 650 or equiv.

Nature, instruments, and place of credit in the economy; management of consumer, mercantile, and bank credit; analysis of credit risk; management of collections; credit control. *Bartels and Miner*.

**757 International Marketing U G 4**

(720) A, Sp. 4 cl.

Prereq.: 650 or equiv.

International, foreign, and United States environment of multi-national business; comparative trade systems; management practices and problems in international marketing. *Bartels*.

**758 Marketing Research U G 4**

(704) A, W, Sp. 4 cl.

Prereq.: 650 and Econ. 442 or equiv.

The role of research in the solution of marketing problems; emphasis on available data analysis and methods of the field investigation. *Miner, Engel, Stern, and Blackwell*.

**761 Personnel Management I: Industrial Relations U G 4**

(695) A, Sp. 4 cl.

Prereq.: 660 or equiv.

Examination of the process of accommodation and rule-making among management, employees, and government relative to their respective goals and strategies, and pertinent legislation and environmental constraints. *Behling and Miljus*.

**762 Personnel Management II: Compensation Administration U G 4**

(693) A, W. 4 cl.

Prereq.: 761 or equiv.

Managerial and organizational aspects of compensation principles and practices for administrative, operative, and staff employees and in various functional fields.

- 769 Problems in Personnel Management** U G 3  
(692) A, Sp. 3 cl.  
Prereq.: 761 and 762 or equiv.  
Problems and case histories are utilized to develop proficiency in applying principles and developing decision-making powers in regard to personnel and human relation areas. *Behling and Miljus.*
- 771 Real Estate Administration** U G 3  
(647) Sp. 3 cl.  
Prereq.: 670 or equiv.  
Administration of real estate business in the performance of economic functions; the managerial aspects of brokerage, development, construction, property management, and financial firms. *Smith.*
- 772 Real Estate Finance** U G 3  
(643) A. 3 cl.  
Prereq.: 670 or equiv.  
Sources and methods of obtaining funds for real estate investment; financial institutions, legal considerations, the construction industry and cycles, and financing policies, practices, and experiences. *Stone and Smith.*
- 773 Real Estate Valuation** U G 3  
(646) W. 3 cl.  
Prereq.: 670 or equiv.  
Professional valuation as a guide to business decisions; valuation theory and procedures; factors influencing real estate values, and the selection and analysis of data. *Smith.*
- 780 Micro-Logistics** U G 4  
(750) Sp. 4 cl.  
Prereq.: 700, Econ. 676 and 677 or equiv.  
Management of logistics activities of the firm from the viewpoint of both the provider and user of logistics system components. *Grabner.*
- 799 Business Policy** U G 4  
Su, A, W, Sp. 4 cl.  
Prereq.: Approved application for B. S. in Business Administration.  
Analysis of major policy decisions in the context of the entire philosophical framework of business; emphasis on consideration of interrelationships of major functions of business.
- 800 Principles and Techniques of Research** G 3  
(800) Su, A, Sp.  
Prereq.: 500, 620, 650, Econ. 442 or equiv.  
Principles of research methods in business and the use of research by management. The scientific method in business, sampling theory, variable analysis, research cases. *Miner and Engel.*
- 801 Quantitative Methods in Business** G 3  
(802) Su, A, W, Sp. 3 cl.  
Prereq.: Math. 123 or equiv. and Econ. 442 or equiv.  
Derivation and application of analytical, mathematical, and statistical techniques to the solution of recurring management problems.  
801.01 Stochastic  
801.02 Deterministic
- 802 Business Research Organization and Methodology** G 3  
A, Sp. 3 cl.  
Prereq.: 800.  
Selection, definition, organization, development, and presentation of an individual research project.
- 803 Administrative Principles** G 3  
(840) A, Sp.  
Prereq.: 620, 630, 650 or equiv.  
An examination of management fundamentals underlying decision making with respect to the utilization of basic performance factors in the accomplishment of business objectives. *Hicks and Powell.*
- 809 Business Policy** G 3  
(841) Su, A, Sp. 3 cl.  
Prereq.: Admission to M.B.A. Program or 500, 620, 650, Acc. 212 or 712, Econ. 442, or equiv., and permission of Graduate Committee.  
Examination of fundamental factors in organization and management; major policy decisions are analyzed; effects of policy decisions on sales, production, personnel, and finances are investigated.
- 820 Advanced Finance** G 3  
(803) Su, W.  
Prereq.: 620 or equiv.  
A critical study of internal financial management of business enterprises, based primarily on comprehensive case analyses. *Pfahl, Stone, and Foster.*
- 822 The Security Market** G 3  
(827) A.  
A critical study of the markets for listed and unlisted securities and the factors influencing security prices. *Stone.*
- 830 Advanced Industrial Management** G 3  
(835) Su, W.  
Prereq.: 630 or equiv.  
A critical survey and examination of the current trends and advanced problems in the organization and management of industrial enterprises. *Abramowitz and Kindig.*
- 832 Advanced Office Organization and Management** G 3  
(836) Sp.  
Prereq.: 734 or equiv.  
A critical survey and examination of current trends and advanced problems in the field of office organization and management. *Hicks.*
- 840 Seminar in Life and Health Insurance** G 3  
(829) W.  
Critical consideration of current topics of significance in the field of life and health insurance through class discussions and individual research reports. *Bickelhaupt.*
- 841 Seminar in Property and Liability Insurance** G 3  
(830) Sp.  
Investigation through class discussion and reports of the current literature on significant topics in property and liability insurance. *Bickelhaupt.*



- 850 Advanced Marketing G 3**  
 (819) Su, W.  
*Prereq.: 650 or equiv.*

A critical study of management of marketing activities in business enterprises, based primarily on comprehensive case analyses. *Davidson, J. H. Davis, and Doody.*

- 852 Seminar in Specialized Areas G 1-3**  
**of Marketing**  
 (818) A, W, Sp.  
*Prereq.: 650 or equiv.*  
*Repeatable.*

Regular class meetings and group discussions of the subject matter embodied by one of the following areas in the field of marketing:

Include decimal with number on schedule card.

- 852.01 Advertising  
*Cullman.*  
 852.02 Credits and Collections  
*Bartels.*  
 852.03 Marketing Research  
*Miner.*  
 852.04 Retailing  
*Davidson.*  
 852.05 Sales Management  
*J. H. Davis.*  
 852.06 Wholesaling  
 852.07 Marketing Theory  
*Bartels.*

- 860 Personnel Relations G 3**  
 (838) A, Sp.  
*Prereq.: 600 or equiv.*

Analysis of interpersonal relations, personnel programs and policies, communication practices, and morale factors relative to the effect upon productivity, organizational effectiveness, and personal objectives. *Behling and Mijus.*

- 870 Seminar in Real Estate G 3**  
 (749) W. 3 cl.  
*Prereq.: 670 plus one of the following: 771, 775, 778, or equiv.*

Issues and problems in the economics and administration of real estate resources critically examined through an intensive investigation of the literature. *Smith and Stone.*

- 880 Physical Distribution Management G 3**  
 (812) A.  
*Prereq.: 630, 650, Econ. 448 or equiv.*

Management of movement services and coordination of demand and supply patterns for optimization of physical systems in terms of cost and customer service.

- 889\* Theory of Business Logistics G 3**  
 (845) Sp.  
*Prereq.: Permission of instructor.*

History of the development of logistics systems; an examination of commonly held hypotheses and other related evidence; discussion of contemporary problems.

- 899 Interdepartmental Seminar G 1-5**  
 Su, A, W, Sp.  
*(See under Interdepartmental Seminars.)*

- 900 General Administrative Management G 3**  
 (833) A.  
*Prereq.: 500, 630 or equiv.*

A seminar dealing with certain management problems of top executives in business organizations, such as business objectives, ethics, policy, functions, and executive leadership. *Hicks and Powell.*

- 901 General Administrative Management G 3**  
 (834) W.  
*Prereq.: 500, 630 or equiv.*

Deals with such top management problems as organization, structure, staff organization, decentralization, morale, and others. *Hicks and Powell.*

- 909 History of Management Thought G 3**  
 (839) Sp.  
*Prereq.: 500, 630 or equiv.*

Seminar in the historical evolution of fundamental concepts underlying the theory and practice of modern management; pioneers in the management fields are discussed. *Hicks and Powell.*

- 920 Seminar in Finance G 3**  
 (804) Sp.  
*Prereq.: 620 or equiv.*

A critical study of current practices, trends, and problems in the field of finance. *Donaldson, Stone, and Pfahl.*

- 929 Industrial Consolidations and Mergers G 3**  
 (825) W.  
*Prereq.: 620 or equiv.*

Historical and analytical study of industrial consolidation and mergers. *Stone.*

- 930 Seminar in Industrial Management G 3**  
 A.  
*Prereq.: 830 or equiv.*

A critical analysis of and research into emerging industrial management theories and tools with emphasis on their economic, social, and physical implications.

- 931 Seminar in Industrial Management G 3**  
 W.  
*Prereq.: 930 or equiv.*

Continuation of 930.

- 950 Seminar in General Marketing G 3**  
 (815) A.  
*Prereq.: 650 or equiv.*

A critical study of fundamental principles of marketing. Special emphasis on the historical, macro, social, and theoretical aspects of the subject. *Davidson.*

- 951 Seminar in General Marketing G 3**  
 (816) W.  
*Prereq.: 950 or equiv.*  
 Continuation of 950. *Davidson.*

**955 Seminar in Contemporary Marketing Problems G 3**(817) *Sp.**Prereq.: 650 or equiv.**Repeatable.*

Review of current periodical literature and individual investigation by each student of a selected marketing problem, of contemporary significance for seminar discussion and written report. *Bartels, J. H. Davis, Davidson, and Miner.*

**959 History of Marketing Thought G 3**(819) *A.**Prereq.: 650 or equiv. and permission of instructor.*

Evolution of marketing, concepts, terminology, principles, and theory. Environmental and personal influences. Analysis of marketing literature. Marketing thought related to other social sciences. *Bartels.*

**960 Seminar in Personnel Management G 3***A.**Prereq.: 660 or equiv.*

A consideration of personnel management in terms of its general dimensions, historical trends, objectives, functions, and relations to organization structures and needs.

**961 Seminar in Personnel Management G 3***W.**Prereq.: 660 or equiv.*

Management of personnel in advancing stages of business development considering theoretical and empirical analyses of concepts and practices pertaining to administrative, technical, and operative levels.

**998 Research in Business Organization: Thesis G Arr.**(950) *Su, A, W, Sp.*

Research for thesis purposes only.

**999 Research in Business Organization: Dissertation G Arr.**(950) *Su, A, W, Sp.*

Research for dissertation purposes only.

**422 Ceramic Heat Processes U 5**(650) *W. 5 cl.*

Drying processes including vaporization, moisture transport, hygrometry, and fluid flow; firing, sintering, melting, cooling, tempering, and annealing processes. *Shook.*

**423 Fundamentals of Ceramic Materials U 3**(640) *Sp. 3 cl.*

Survey of raw materials, their properties, functions, thermal behavior, and application; introduction to the concept of glassy and crystalline states. *Russell.*

**489 Inspection Trip U 2**(630) *Su, A, W, Sp. 6 approved plant visits.*

Visits to a variety of modern ceramic operations as arranged by the department throughout the academic year.

**510 Thermodynamics of Ceramic Materials U G 3***A. 3 cl.**Prereq.: Chem. 553.*

Applications of thermodynamics to ceramic systems, including non-stoichiometry and interfacial relationships. *Alexander.*

**529 Ceramic Process and Product Control U 4**(719) *Sp. 4 cl.**Prereq.: 422.*

The application of control methods for processes and products. *Everhart.*

**589 Industrial Experience U 5**(430) *Su, A, W, Sp.**Repeatable to a maximum of 10 cr. hrs.*

Ten weeks practical experience or its equivalent, including written report, in approved factory manufacturing ceramic wares.

**611 Ceramic Materials Science I U G 4**(715) *A. 4 cl.**Prereq.: Chem. 553, concur. Mineral. 605.*

Crystalline bonds, atomic structure, coordination, defect and silicate structures; glass energy relations; glass structure and composition related to photoelastic, optical, elastic, and mechanical properties. *Hicks.*

**621 Ceramic Plant Design U G 5**(740) *Sp. 4 cl., 1 2-hr. lab.**Prereq.: 529, Eng. Mech. 420.*

The concepts of ceramic plant layout with regard to processing equipment; project planning and updating techniques. *Shook.*

**631 Ceramic Technology U G 4**(731) *Sp. 2 cl., 2 3-hr. lab.*The technology of glass. *Hicks.***632 Ceramic Technology U G 4**(732) *W. 2 cl., 2 3-hr. lab.*

The technology of porcelain enamels and surface coatings for metals. *King.*

**633 Ceramic Technology U G 4**(733) *Sp. 2 cl., 2 3-hr. lab.*

The technology of refractories, structural clay products, and abrasives. *Metzger.*

## Ceramic Engineering

Office: 177 Watts Hall, 2041 North College Road

Professors Everhart (Chairman), Blau (Emeritus), R. King (Emeritus), Metzger, and Russell; Adjunct Professors Hicks and Koenig; Associate Professor Shook; Assistant Professors Campbell and B. King; Adjunct Assistant Professor Alexander.

**421 Fundamentals of Ceramic Engineering U 5**(521) *A. 4 cl., 1 3-hr. lab.*

Nature of the ceramic industry; occurrence of materials, property exploration and evaluation, recovery, beneficiation, and mineral economics; unit operations in preparation and forming processes. *Shook.*



**634 Ceramic Technology U G 4**

(734) A. 2 cl., 2 3-hr. lab.

The technology of fine textured ceramics in the area of whitewares, electrical, technical and nuclear materials, and glaze coatings. *Russell*.

**693 Special Problems U G 1-7**

(750) Su, A, W, Sp. Conf., library, and lab. work.

Prereq.: Permission of instructor.

Repeatable to a maximum of 15 cr. hrs.

Ceramic investigations in areas of advanced non-thesis research.

**711 Ceramic Materials Science II U G 4**

(716) W. 4 cl.

Prereq.: 611.

Combinations of the glassy and crystalline states; heterogeneous crystal systems; interfacial conditions, internal stress states, interstate bonds, micro and macro structure. *Shook*.

**712 Advanced Ceramic Materials U G 4 Science I**

(781) A. 4 cl.

Prereq.: 711 or permission of instructor.

Materials science in the areas of crystal chemistry, colloids, surface phenomena, and rheology of plastic and solid states; thermal and optical properties. *King*.

**713 Advanced Ceramic Materials U G 4 Science II**

(782) A. 4 cl.

Prereq.: 711.

Defect structures, diffusion, and electrical conductivity; solid state reactions, nucleation and growth in ceramic systems; ceramic microstructures. *Shook*.

**741 The Chemistry and Chemical U G 3 Processes of Glass Technology**

(726) W. 3 cl.

Prereq.: 611, 631.

The practical processes and equipment for producing commercial molten glasses, including the selection and handling of materials, charging, processes in the furnace, types of furnaces, furnace design, and operation. *Koenig*.

**742 The Physics and Physical U G 4 Processes of Glass Technology**

(727) Sp. 4 cl.

Prereq.: 611, 631.

The development of machine processes for forming containers, tubes, flatglass, etc.; theory and processes of annealing, heat treatment, and decoration; emphasis on the relation of processes to properties. *Hicks*.

**785 Ceramic Research Methods U G 3**

(765) A. 1 cl., 6 lab. hrs.

Prereq.: 711.

Introduction to research experience; organization and planning; initiating specific research, designed in combination with 786 to give experience in individual and group research. *Shook and Staff*.

**786 Ceramic Research Methods U G 3**

(766) W. 9 lab. hrs.

Prereq.: 785.

Continuation of 785 with accent on the conduct of specific research problems.

**790 Ceramic Case Histories U G 3**

(775) Sp. 3 cl.

The study of selected case histories in ceramic technological and industrial problems; designed to give experience in individual and group thinking in problem solution. *Everhart*.

**791 Ceramic Case Histories U G 3**

(776) Sp. 3 cl.

The study of selected case histories in ceramic technological and industrial problems; designed to give experience in individual and group thinking in problem solution. *Russell*.

**851 Advanced Glass Science G 4**

(831) W. 2 cl., 2 3-hr. lab.

Prereq.: 631, Chem. 533.

The coordination of composition and physical treatment for attaining desired properties in glass; detailed consideration is given to special glasses. *Hicks*.

**852† Physical Vitreology G 4**

(832) Sp. 4 cl.

Prereq.: 631, Chem. 533.

Advanced study of the concepts of the glassy state; theories of random space networks, energy relations, thermal effects, phase equilibria, and X-ray diffraction studies. *Hicks*.

**853 Advanced Ceramic Physics and G 4 Chemistry**

(821) W. 4 cl.

Prereq.: Permission of instructor.

Reactions between solid phases, including sintering; the application of phase equilibria to ceramic problems. Oxide ceramics and thermodynamics. *Alexander*.

**854 Advanced Ceramic Physics and G 4 Chemistry**

(822) Sp. 4 cl.

Prereq.: Permission of instructor.

Special properties of crystals; organic chemistry, ultrasonics, and thermodynamics applied to ceramics; non-oxide ceramics. *Alexander*.

**855 Advanced Ceramic Science G 4**

(841) W. 4 cl. or conf.

Prereq.: 711 or equiv.

Modern engineering materials from viewpoint of ceramic science, and solid state physics; consideration of electrical and mechanical phenomena related to technical ceramics behavior. *Russell*.

**856 Advanced Ceramic Science G 4**

(842) Sp. 4 cl. or conf.

Prereq.: 711 or equiv.

Modern engineering materials from viewpoint of ceramic science; thermal behavior, ceramic-metal systems, sandwich and fiber composites, space material problems, plasma and vapor deposition technology. *King*.

**889 Seminar in Ceramic Engineering G 1-2**

(815) A, W, Sp.

Prereq.: Permission of instructor.

Repeatable to a maximum of 6 cr. hrs.

Conference and reports on problems in ceramic science, technology and engineering; topics are chosen to cover the development of the ceramic industry.

**999 Research in Ceramic Engineering G Arr.**

(950) Su, A, W, Sp.

Research for thesis or dissertation purposes only.

# Chemical Engineering

Office: 125 Chemical Engineering Building, 140 West 19th Avenue.

Professors Koffolt (Chairman), Brodkey, Geankoplis, Kay, and Syverson (Associate Chairman); Associate Professors Lynn (ALCOA), Sheets, Slider, Smith, and Sweeney; Assistant Professors Haering, Hershey, and Svanks; Adjunct Assistant Professors Bates, Eckert, and Martin.

## 400 Chemical Engineering and Process Calculations U 3

(593) A, W. 2 cl., 2 comp. lab. hrs.

Prereq.: Physics 232, Math. 153, and Chem. 221 or permission of instructor.

The application of physico-chemical principles to problems of chemical industry; the emphasis is on graphical method, stoichiometry, heat, and material balances. Geankoplis, Haering, and Koffolt.

## 401 Chemical Engineering and Process Calculations U 3

(594) W, Sp. 2 cl., 2 comp. lab. hrs.

Prereq.: 400.

Continuation of 400.

## 489 Chemical Engineering Practice U 5

(501) A. 10 weeks approved work experience.

Prereq.: Chem. E. 3rd yr. standing.

The equivalent of ten weeks spent in a factory, or the engineering department of an industrial plant or organized industrial work between 3rd and 4th year in Chemical Engineering. Koffolt.

## 520 Elements of Chemical Engineering—Transport Phenomena I U G 3

(691) A, W. 2 cl., 2 comp. lab. hrs.

Prereq.: 401, concur. Math. 255, Physics 232 or permission of instructor.

Introduction to momentum, mass, and heat transfer with emphasis on the analogies between the transports; numerous computation problems illustrate applications to chemical engineering practice. Brodkey and Smith.

## 521 Elements of Chemical Engineering—Transport Phenomena II U G 3

(692) W, Sp. 2 cl., 2 comp. lab. hrs.

Prereq.: 520, Math. 255, Math. 512, or permission of instructor.

Continuation of transport theory and introduction to radiation as applied to heat transfer; basic principles will be developed and illustrated with practical problems from chemical engineering practice. Brodkey, Smith, and Sweeney.

## 608 Chemical Engineering Thermodynamics U G 3

(753) A, Sp. 2 cl., 2 comp. lab. hrs.

Prereq.: Chem. 541 or permission of instructor.

Application of the fundamental concepts and laws of thermodynamics to problems of the chemical industry; stress is laid on computational problem work. Kay and Smith.

## 609 Chemical Engineering Thermodynamics U G 3

(754) W. 2 cl., 2 comp. lab. hrs.

Prereq.: 608.

Continuation of 608.

## 610 Chemical Engineering Kinetics U 3

(755) Sp. 2 cl., 2 comp. lab. hrs.

Prereq.: 609, 612, and Chem. 533.

Chemical and engineering principles for the design and operation of chemical reactors; kinetics of simple homogeneous systems and introduction to heterogeneous catalysis. Syverson.

## 611 Elements of Chemical Engineering—Transport Phenomena III U G 3

(719) A, Sp. 2 cl., 2 comp. lab. hrs.

Prereq.: 521, or equiv. or permission of instructor.

Continuation of the study of transport theory; emphasis is laid on mass transfer and stagewise operations with applied computational problems. Geankoplis and Smith.

## 612 Chemical Engineering Operations U G 4

(720) W, Sp. 3 cl., 2 comp. lab. hrs.

Prereq. or concur.: 611, Chem. 532 or permission of instructor.

The application of the transport phenomena as fluids, heat and mass transfer to the chemical engineering operations of evaporation, distillation, drying, etc. Koffolt and Smith.

## 685 Inspection Trip U 2

(704) Sp. One week between W. and Sp. Qtrs.

Repeatable to a maximum of 4 cr. hrs.

These trips will give some practical knowledge of the magnitude of modern chemical engineering operations from a selected variety of industry. The total cost will average about \$75. Koffolt.

## 693 Problems in Chemical Engineering Operations U G 2-8

Su, A, W, Sp. 1 cl., 5-23 lab. hrs.

Prereq.: 521.

Repeatable to a maximum of 15 cr. hrs.

Not for graduate credit for students majoring in Chem. E.

Individual or group conferences, library, and laboratory work dealing with fundamental chemical engineering operations. Koffolt.

## 725 Chemical Process Control U G 3

(740) Sp. 2 cl., 4 lab. hrs.

Prereq.: 612 or equiv. or permission of instructor.

Study of the principles employed in the measurement and control of the physical and chemical variables of chemical processes and applications to control of chemical processes. Geankoplis and Sweeney.

## 730 Chemical Engineering Operations Laboratory U G 4-8

(741) Su. 5 conf., 7-19 lab. hrs.

Prereq.: 612 and 725, or permission of instructor.



The fundamental laboratory course in the chemical engineering operations; laboratory investigation of the operating characteristics and efficiency of chemical engineering equipment as distillation, drying, filtration, etc. *Koffolt, Haering, and Smith.*

## 750 The Profession of Chemical Engineering U 1

(777) A. 1 cl.

Prereq.: Chem. E. 5th yr. standing.

The code of ethics of the chemical engineer, professional registration, responsibilities to the societies of the profession, to management, to labor, and as an administrator. *Koffolt.*

## 760 Chemical Engineering Economy U G 3

A. 2 cl., 2 comp. lab. hrs.

Prereq.: 750 or permission of instructor.

Economic consideration in research development, design, and manufacturing in the chemical process industry; cost estimation and economic optimization of chemical engineering operations and chemical processes. *Syverson.*

## 761 Chemical Engineering Processes U G 3

A. 2 cl., 2 comp. lab. hrs.

Prereq.: 609, 612, concur. 610 and 760 or permission of instructor.

Integration of fundamentals of chemistry, chemical engineering operations, thermodynamics, reaction kinetics, and economics for optimum design and operation of chemical process plants. *Hershey and Sweeney.*

## 762 Chemical Engineering Process Development U G 4

(770) W. 1 cl., 11 lab. hrs.

Prereq.: 750, 760, 761 or equiv.

Library, laboratory and pilot plant research and development on chemical processes of industrial potential justified by preliminary economic studies; preparation of optimum process flow sheets; plant design studies. *Haering, Lynn, and Sweeney.*

## 763 Analysis and Organization of Special Project Problem Investigations U 2

(790) W. 6 hrs. conf. and lab.

Prereq.: Chem. E. 5th yr. standing.

Analysis of definite problems having the theoretical and practical application to the chemical industry; individual effort guided by a chemical engineering staff member. *Syverson.*

## 764 Chemical Engineering Process Design U G 3

(772) Sp. 1 cl., 2 4-hr. lab.

Prereq.: 762.

Based on processes developed in 762; equipment design, process control, plant location studies, economic evaluation of project. Work coordinated with Engineering Graphics 765. *Haering.*

## 770 Applied Electrochemistry U G 3

(763) A. 2 cl., 4 lab. hrs.

Prereq.: Chem. 533 or permission of instructor.

The relationship between electrical and chemical energy as applied to chemical industries will be discussed and illustrated by laboratory work. *Lynn.*

## 771 Air Pollution U G 3

Sp. 3 cl.

Prereq.: 3rd professional yr. standing in Engr. or permission of instructor.

Sources of air pollutants, properties of small particles, chemistry of air pollution, dispersion and deposition of air pollutants, air pollution control. *Sweeney.*

## 773 Introduction to High Polymer Engineering U G 3

W. 3 cl.

Prereq.: 610 and Organic Chem. or permission of instructor.

Engineering of polymerization and polymer forming processes based upon thermodynamics, transport phenomena, and reaction kinetics; relationship of engineering properties of high polymers to molecular characteristics. *Lynn.*

## 775 Rheology of Fluids U G 3

Sp. 3 cl.

Prereq.: 520. Permission of instructor for students not majoring in Chem. E.

Principles of rheology including the characteristics of non-Newtonian materials, measurements, rheological equations of state, viscometric flows, and applications to the flow of industrial materials. *Brodkey.*

## 778 Nuclear Chemical Engineering U G 4

(766) W. 3 cl., 3-hr. lab.

Prereq.: Nuclear E. 763 or permission of instructor.

A study of physical, chemical and economic principles applied to chemical process problems; illustrated by computer computation and radioisotopes-radiation laboratory experiments. *Haering.*

## 785 Special Project Problem Investigations U G 5 or 6

(791) Su, A, W, Sp. 15 hrs. conf. and lab.

Prereq.: 763 or permission of instructor.

Repeatable to a maximum of 12 cr. hrs.

Solution of study problems, either new or continued from 763; extensive theoretical and/or experimental work is followed by a comprehensive report.

## 801 Advanced Special Problems in Chemical Engineering G 1-15

Su, A, W, Sp. Conf., library and/or lab.

Prereq.: Satisfactory courses in field of problem undertaken.

Repeatable to a maximum of 15 cr. hrs.

A minor problems course covering the chemical engineering operation, instrumentation, thermodynamics, kinetics, the transport fields, and chemical technology.

## 808 Advanced Chemical Engineering Thermodynamics G 3

(820) W. 3 cl.

Prereq.: 609, 612, or permission of instructor.

Detailed discussion of the thermodynamic properties of pure compounds and mixtures; computational problem work emphasizes the application of thermodynamics in industrial problems. *Kay.*

## 809 Advanced Chemical Engineering Thermodynamics G 3

(881) Sp. 3 cl.

Prereq.: 808.

Continuation of 808.

**812 Advanced Chemical Engineering Kinetics G 3**

(830) W. 3 cl.

Prereq.: 610, 612, or permission of instructor.

Chemical engineering kinetics from the viewpoint of industrial chemical processes. *Haering.***813 Advanced Chemical Engineering Kinetics G 3**

(831) Sp. 3 cl.

Prereq.: 812.

Continuation of 812. *Haering.***815 Advanced Chemical Engineering Science and Applications G 3**

A, W, Sp. 3 cl.

Prereq.: Chem. Engr. graduate standing or permission of instructor.

This series of courses presents advanced concepts of science and engineering as applied to the chemical engineering field under various topics.

**815.01 Advanced Mass Transfer—I****815.02 Advanced Mass Transfer—II****815.03 Advanced Binary and Multicomponent Distillation****815.04 Extraction, Azeotropic and Extractive Distillation****815.05 Advanced Heat Transfer—I**  
Conduction, radiation and convection.**815.06 Advanced Heat Transfer—II**  
Condensation, boiling, design applications.**815.07 Drying, Humidification and Dehumidification****815.08 Advanced Momentum Transfer—I**  
Basic Theory and laminar flow.**815.09 Advanced Momentum Transfer—II**  
Turbulence.**815.10 Advanced Momentum Transfer—III**  
Two-phase phenomena.**815.11 Advanced Combustion Principles****815.12 Advanced Instrumentation and Process Control of Chemical Plants****815.13 Design of Experiments**  
Data handling and analysis, quality control, linear programming.**815.14 Advanced Process and Plant Design****815.15 New or Unusual Chemical Engineering Operations**

Examples: adsorption, atmolysis, dialysis exclusion, sublimation.

**830 Advanced Chemical Engineering Operations Laboratory G 2-6**

(880) Su, A, W, Sp. 1 conf., 5-17 lab. hrs.

Prereq.: 609, 612, and/or concur. 730, or permission of instructor.

Repeatable to a maximum of 15 cr. hrs.

Chemical engineering fundamentals and operations. *Koffolt.***861 Advanced Chemical Engineering Processes G 3**

A. 2 cl., 2 comp. lab. hrs.

Prereq.: 610, 612, 830; and/or 760 concur. or equiv.

Study of selected chemical engineering processes which involve the application of chemistry, thermodynamics, reaction kinetics and heat and mass transfer, oxidation, hydrogenation, polymerization, esterification, halogenation. *Hershey and Sweeney.***862 Advanced Chemical Engineering Process Development G 5**

(870) W. 1 cl., 14 lab. hrs.

Prereq.: 610, 760, 880.

Original work on development of a new process; basic data for process design and preliminary cost estimate required. *Haering, Lynn, and Sweeney.***881 Seminar in Chemical Engineering G 2**

(905) Su, A, W, Sp. 2 conf. hrs.

Prereq.: Graduate standing in Chem. E.

Repeatable to a maximum of 12 cr. hrs.

Formal reports, lectures, and discussions of fundamentals and new developments in science and technology as related to chemical engineering.

**999 Research in Chemical Engineering G Arr.**

(950) Su, A, W, Sp.

Research for thesis or dissertation purposes only.

## Chemistry

Office: 1003 Evans Chemical Laboratory, 88 West 18th Avenue; General Chemistry Office: 115 McPherson Chemical Laboratory, 140 West 18th Avenue

Professors Calvert (Chairman), Boord (Emeritus), Bowerman (Administrative Vice Chairman), Busch, Caley, Dorfman, Firestone, Garrett (Vice President, Research), Harris, Haskins (Emeritus), Hine, Lippincott, Newman (Regents Professor), Rubin, Shechter, Shore, Sweet, Taylor, Van Winkle, Verhoek (Vice Chairman), Watters, and Wolfrom (Regents Professor); Associate Professors Fraenkel, Gassman, Horton, Kern (Adjunct), Kurbatov (Emeritus), Leussing, MacWood, Meek, Quелlette, Paquette, and Wojcicki; Assistant Professors Anderson, Corfield, Dougherty, Gerkin, Klapper, Krubsack, Mathews, Mayer, Schram, and Swenton.

**101 Elementary Chemistry U 5**

(407) A, W, Sp. 4 cl., 3 lab. hrs.

Prereq.: Eligibility to enroll in Math. 116.

Not open to students with credit for 111 or 121.

A course in the principles of chemistry; the chemistry of the more important elements and compounds, including the compounds of carbon.

**102 Elementary Chemistry U 5**

(408) A, W, Sp. 4 cl., 3 lab. hrs.

Prereq.: 101.

Not open to students with credit for 112 or 122.

Continuation of 101. A terminal sequence in chemistry for students requiring only two courses in chemistry.

**111 General Chemistry U 4**

(404) A, W. 3 cl., 3 lab. hrs.

Prereq.: Engr. 1st yr. standing. One unit of high school Chem. and eligibility to enroll in Math. 150.

Not open to students with credit for 101 or 121.

A general course in the principles of chemistry intended for students in engineering; metallic elements; applications to quantitative analysis.



**112 General Chemistry** U 4  
 (405) W, Sp. 3 cl., 3 lab. hrs.  
 Prereq.: 111.  
 Not open to students with credit for 102 or 122.  
 Continuation of 111.

**113 General Chemistry** U 4  
 (406) A, Sp. 2 cl., 6 lab. hrs.  
 Prereq.: 112.  
 Not open to students with credit for 102, (409), or 123.  
 Continuation of 112; elementary organic chemistry; non-metallic elements.

**121 General Chemistry** U 5  
 (411) Su, A, W, Sp. 3 cl., 3 lab. hrs.  
 Prereq.: One unit of high school Chem., and eligibility to enroll in Math. 150.  
 Not open to students with credit for 111.  
 A general course in fundamental chemical principles.

**122 General Chemistry** U 5  
 (412) Su, A, W, Sp. 3 cl., 3 lab. hrs.  
 Prereq.: 121; or completion of 101 with a grade of "A" or "B" and eligibility to enroll in Math. 150.  
 Continuation of 121. The chemistry of the most important non-metals and of chemical reactions in solutions.

**123 General Chemistry** U 5  
 (413) Su, A, W, Sp. 3 cl., 6 lab. hrs.  
 Prereq.: 122.  
 Not open to students with credit for 112 or (409).  
 Continuation of 122. The chemistry of the metals including introductory quantitative analysis.

**201 General Chemistry** U 5  
 (511) A. 3 cl., 4 lab. hrs.  
 Prereq.: Superior performance on placement examination, Math. 151 or equiv.  
 Not open to students with credit for 111, 101, or 121.  
 For selected students. The principles of chemical measurement.

**202 General Chemistry** U 5  
 (512) W. 3 cl., 4 lab. hrs.  
 Prereq.: 201.  
 Continuation of 201. The properties of matter and quantitative analysis.

**203 General Chemistry** U 5  
 (513) Sp. 3 cl., 4 lab. hrs.  
 Prereq.: 202.  
 Continuation of 202. Systematic chemistry of the elements.

**211 Quantitative Analysis** U 3 or 4  
 (521) Su, A, W, Sp. 2 cl., 5 to 8 lab. hrs.  
 Prereq.: 113, (409), or 123, or equiv.  
 Not open to students with credit for (421).  
 A general course in quantitative analysis; gravimetric, volumetric and instrumental analysis.

**212 Quantitative Analysis** U 3 or 4  
 (522) Su, W, Sp. 2 cl., 5 to 8 lab. hrs.  
 Prereq.: 211.  
 Not open to students with credit for (422).  
 Continuation of 211.

**221 Quantitative Analysis** U 5  
 (531) A. 3 cl., 6 lab. hrs.  
 Prereq.: 123 or equiv.  
 Not open to students with credit for (431).  
 The fundamental course in quantitative chemical analysis for students majoring in chemistry.

**231 Organic Chemistry** U 5  
 (551) A, Sp. 3 cl., 6 lab. hrs.  
 Prereq.: 113, (409), or 123, or equiv.  
 Not open to students with credit for (451).  
 A general introductory course in organic chemistry, including laboratory preparations, arranged for students preparing for dentistry, optometry, veterinary medicine, medical technology, and pharmacy.

**232 Organic Chemistry** U 5  
 (552) Su, W. 3 cl., 6 lab. hrs.  
 Prereq.: 231.  
 Not open to students with credit for (452).  
 Continuation of 231.

**241 Organic Chemistry** U 3  
 (647) A, Sp. 3 cl.  
 Prereq.: 123 or (409).  
 Not open to students with credit for (451) or 231.  
 A fundamental course in organic chemistry designed for students preparing for medicine or high school teaching.

**242 Organic Chemistry** U 3  
 (648) Su, W. 3 cl.  
 Prereq.: 241.  
 Not open to students with credit for (452) or 232.  
 Continuation of 241.

**243 Organic Chemistry Laboratory** U 3  
 (649) A, Sp. 9 lab. hrs.  
 Prereq. or concur.: 241.  
 Not open to students with credit for (451) or 231.

A preparation of a series of typical organic compounds, such as are studied in 241-242, their purification, and a study of their properties.

**244 Organic Chemistry Laboratory** U 3  
 (650) Su, W. 9 lab. hrs.  
 Prereq.: 243.  
 Not open to students with credit for (452) or 232.  
 Continuation of 243.

**251 Organic Chemistry** U 3  
 (655) A. 3 cl.  
 Prereq.: 123 or (409).  
 Not open to students with credit for (451), 231 or 241.  
 A fundamental course in chemistry designed for Chemistry majors and chemical engineers.

- 252 Organic Chemistry** U 3  
(657) W. 3 cl.  
Prereq.: 251.  
Not open to students with credit for (452), 232 or 242.

Continuation of 251.

- 253 Organic Chemistry** U 3  
(659) Sp. 3 cl.  
Prereq.: 252.  
Continuation of 252.

- 254 Organic Chemistry Laboratory** U 3  
(656) A. 6 or 9 lab. hrs.  
Prereq. or concur.: 251.  
Not open to students with credit for (451-452) or 243-244.

The preparation, purification, characterization, and study of the properties of typical organic compounds.

- 255 Organic Chemistry Laboratory** U 3  
(658) W. 6 or 9 lab. hrs.  
Prereq.: 254 or concur. 252.  
Not open to students with credit for (451-452).  
Continuation of 254.

- 501 Recent Advances in Chemistry** U G 5  
(630) Su, A. 5 cl.  
Prereq.: Academic Year Science Institute students only. 30 cr. hrs. of Chem.  
Not for graduate credit to students majoring in Chem.

A course designed for high school science teachers. Recent developments in the theory of valence, particle nature of matter, colloids, high polymers, nuclear chemistry, fuels and photosynthesis.

- 502 Radiochemistry** U G 3  
(631) Su. Summer Institute only. 4 cl. each week.  
Prereq.: Academic Year Science Institute students only. 1 yr. college Math., 1 yr. college Chem., 1 yr. college Physics.  
Not for credit to students majoring in Chem.

The properties of the nucleus, selection and preparation of isotopes for tracer work, the application of radioactive isotopes to chemical problems.

- 521 Physical Chemistry** U G 5  
(670) Sp. 5 cl.  
Prereq.: 242-244 or 252-255, or equiv., Math. 151, and Physics 113.  
Not for graduate credit to students majoring in Chem.

A study of the fundamental principles of physical chemistry arranged for students in the biological sciences.

- 531 Physical Chemistry** U G 3  
(681) A. 3 cl.  
Prereq.: 213 or 221 or equiv., Physics 113 or 232, 233 and Math. 254; prereq. or concur. Math. 255.  
Not for graduate credit to students majoring in Chem.

The fundamental course in physical chemistry.

- 532 Physical Chemistry** U G 3  
(682) W. 3 cl.  
Prereq.: 531; 552 concur. recommended.  
Not for graduate credit to students majoring in Chem.  
Continuation of 531.

- 533 Physical Chemistry** U G 3  
(683) Sp. 3 cl.  
Prereq.: 532.  
Not for graduate credit to students majoring in Chem.

Continuation of 532.

- 541 Physical Chemistry Laboratory** U G 3  
(690) A, Sp. 1 cl., 3 lab. hrs.  
Prereq. or concur.: Chem. E. 3rd yr. standing, 521 or 533 or equiv.

- 551 Physical Chemistry Laboratory** U G 2  
(691) A, W, Sp. 6 lab. hrs.  
Prereq. or concur.: 531.

Quantitative measurements of phenomena of chemical interest and the application of chemical principles to their interpretation.

- 552 Physical Chemistry Laboratory** U G 2  
(692) A, W, Sp. 6 lab. hrs.  
Prereq.: 551; prereq. or concur. 532.  
Continuation of 551.

- 587 Principles of Instrumental Analysis** U G 5  
Sp. 3 cl., 6 lab. hrs.  
Prereq.: 532, 552, and prereq. or concur. 533.

Application of physical-chemical principles to problems of chemical analysis; laboratory practice in basic instrumental techniques.

- 601 Chemical Information Science** U G 1  
(782) A. 1 cl.  
Prereq.: 213 or (533), (452), 242 or 255, or equiv.

Chemical library usage for information retrieval and introduction to modern methods of chemical information handling.

- 602 History of Chemistry** U G 2  
(784) W. 2 cl.  
Prereq.: 213 or (533), (452), 242 or 255, or equiv.

A general course in the history of chemistry with special reference to the development of the theories of the science.

- 616 Organic and Inorganic Micro Quantitative Analysis** U G 4  
(742) Sp. 1 cl., 9 lab. hrs.  
Prereq.: 213 or (433), 242-244, or 252-255, or equiv.

Application of various micro chemical techniques for solving problems in organic and inorganic chemistry.

- 621 Chemical Spectrophotometry** U G 4  
(729) W. 2 cl., 6 lab. hrs.  
Prereq.: 531 or concur.

Application of infrared, visible, ultraviolet spectrophotometers, atomic emission and absorption spectrographs to problems involving inorganic and organic molecular structure, analysis, equilibria, and reaction rates.

- 631 Structure Determination and Identification of Organic Compounds** U G 3  
A. 1 hr. lec., 9 lab. hrs.  
Prereq.: 253 or equiv.

Application of chemical and physical methods in structure determination of organic compounds.



**632 Physical Methods U G 3**  
**in Organic Chemistry**(757) *Sp. 3 cl.**Prereq.: 253 and 533 or equiv.*

Selected topics in bonding, molecular orientation, and reactivity of organic compounds and metastable intermediates with emphasis on physical methods of approach.

**635\* Chemistry of the Carbohydrates U G 3**(794) *A. 3 cl.**Prereq.: 242 or 252 or equiv.*

Repeatable to a maximum of 6 cr. hrs., with instructor's permission.

Monosaccharides (A); oligosaccharides and polysaccharides (B); A is given in even-numbered years and B in odd-numbered years.

**651 Advanced Inorganic Chemistry I U G 3**(761) *Su, A. 3 cl.**Prereq.: 533 or permission of instructor.*

An introduction to the concepts and chemical systems of inorganic chemistry, including atomic structure, the periodic table, molecular structure and bonding, ionic crystals, defect solid state and electron deficient compounds.

**652 Advanced Inorganic Chemistry II U G 3**(762) *W. 3 cl.**Prereq.: 651.*

The chemistry of the transition elements; co-ordination compounds, organometallics, noble gases, representative elements and lower boron hydrides; acid-base theories.

**653 Advanced Inorganic Chemistry III U G 3**(763) *Sp. 3 cl.**Prereq.: 652.*

A discussion of special topics in modern inorganic chemistry, correlating the group relationships among the non-metallic elements, polyhedral anions and carborane structures.

**655 Inorganic Chemistry Laboratory U G 3**(772) *Sp. 9 lab. hrs.**Prereq.: 533 or equiv.*

Preparative techniques of inorganic chemistry including the use of liquified gases, aqueous and non-aqueous solutions, anhydrous and oxygen-free systems, fusion reactions, etc.

**661 Biochemistry U G 5***Sp. 3 75-min. cl.*

*Prereq.: 251, 252, 253 or equiv. with grade of "A" or "B"; 531, 532, 533 or equiv. with grade of "A" or "B".*

A survey of biochemistry for the superior advanced undergraduate or the beginning graduate student who does not necessarily plan to do graduate research in biochemistry.

**671 Nuclear, Radio, and Radiation Chemistry U G 3**(751) *A. 3 cl.**Prereq.: 533 or equiv.*

Nuclear properties, nature of radioactivity, radioactive decay and growth, interactions of radiation with matter, applications.

**672 Nuclear Chemistry Laboratory U G 2**(753) *W. 6 lab. hrs.**Prereq.: 671.*

Techniques of handling radioactive tracers, the detection and measurement of different types of radiation, neutron activations, and other related laboratory techniques.

**675 X rays and Crystal Structure U G 4**(754) *A. 3 cl., 3 lab. hrs.*

*Prereq.: Math. 255, Physics 113 or 232, 233, or equiv.*

An introduction to the methods of X-ray crystal analysis. Theory of symmetry of crystals and of diffraction will be discussed and applied.

**676 Colloid Chemistry U G 3**(795) *W. 3 cl.**Prereq.: 533.*

Modern theories of colloidal behavior; absorption and surface phenomena; physical-chemical methods for the characterization of proteins, high polymers, and inorganic colloids.

**693 Individual Studies in Chemistry U G 1-15**(701) *Su, A, W, Sp. Conf., library, and lab.*

*Prereq.: Satisfactory courses in field of the problem and permission of instructor.*

Repeatable to a maximum of 60 cr. hrs.

A qualified student may conduct a minor investigation in Chemistry.

**733 Chemistry of Organic Catalysis U G 3**(760) *Sp. 3 cl.*

*Prereq.: 253 or 831 concur.; 533; 651 or equiv.*

Not open to students with credit for (860).

Structure of organic catalysts and the mechanism of their reactions.

**821 Advanced Analytical Chemistry G 3***A. 3 1-hr. lec.**Prereq.: 533, 631; or permission of instructor.*

Advanced level discussion of electrochemical principles and mass transport processes; discussion of applications to organic and inorganic systems.

**822 Advanced Analytical Chemistry G 3***W. 3 1-hr. lec.**Prereq.: 821 or permission of instructor.*

Kinetic and thermodynamic processes of fundamental importance in the characterization of chemical species.

**823 Advanced Analytical Chemistry G 3***Sp. 3 1-hr. lec.**Prereq.: 822 or permission of instructor.*

Advanced course in the principles of measurement of the interaction of electromagnetic radiation with matter.

**831 Advanced Organic Chemistry G 3**(841) *A. 3 cl.*

*831-832-833 to be taken in sequence.*

An advanced course in the fundamental principles of chemistry covering the aliphatic hydrocarbons and their derivatives.

**832 Advanced Organic Chemistry G 3**

(842) W. 3 cl.

Prereq.: 831.

An advanced course in the fundamental principles of chemistry covering a survey of heterocyclic compounds, carbonyl compounds, and aromatic compounds.

**833 Advanced Organic Chemistry G 3**

(843) Sp. 3 cl.

Prereq.: 832.

An advanced course in the fundamental principles of chemistry covering a survey of heterocyclic compounds, carbohydrates, proteins, and enzymes.

**835 Advanced Organic Chemistry Laboratory G 3**

(844) Su, W. 9 lab. hrs.

Permission of student's Graduate Adviser.

An advanced course in fundamental reactions and procedures with emphasis on recent advances in technique.

**836 Advanced Organic Chemistry Laboratory G 3**

(845) Su, Sp. 9 lab. hrs.

Permission of student's Graduate Adviser.

Continuation of 835.

**851 Advanced Inorganic Chemistry G 3**

(868) A. 3 cl.

Prereq.: 533, 652, or permission of instructor.

A survey of modern theories of valence and their application to the problems of structural inorganic chemistry.

**852 Advanced Inorganic Chemistry G 3**

(869) W. 3 cl.

Prereq.: 851.

A detailed treatment of the chemistry of the transition elements from the standpoint of molecular and atomic structure, electronic spectra, magnetism, and ligand-field theory.

**855 Advanced Inorganic Chemistry Laboratory G 3**

(773) Su. 1 cl., 8 lab. hrs.

Prereq.: 551; 552; and (893) or equiv.; 651 or permission of instructor.

Advanced methods for the synthesis, purification, identification and characterization of inorganic substances.

**871 Research Instrumentation G 3**

(803) Sp. 9 lab. hrs.

Prereq.: 533; Physics 232, 233, Math. 255 or equiv.

Background theory and laboratory applications in the use of electrical and electronic instruments in chemical research.

**872 High Polymers G 3**

(839) Su, Sp.

Prereq.: 533.

A course in the physical chemistry of macromolecules and their solutions, including the kinetics of polymerization reactions.

**873 X rays and Electron Diffraction G 3**

(864) W. 3 cl.

Prereq.: 675.

An advanced consideration of the theory of X rays and electron diffraction and their applications including Fourier methods of parameter determination in crystals, etc.

**875 Chemical Kinetics I G 3**

(881) A. 3 cl.

Prereq.: 533.

Fundamentals of chemical kinetics in homogeneous liquid and gaseous systems.

**876 Chemical Kinetics II G 3**

(882) W. 3 cl.

Prereq.: 875.

Continuation of 875. Elementary reactions; chain reactions; fast reaction methods; reaction rates in heterogeneous systems.

**877 Radiation and Photochemical Kinetics G 3**

Sp. 3 cl.

Prereq.: 875.

The physical and chemical effects of the absorption of radiant energy, with emphasis on kinetics and mechanism.

**881 Thermodynamics G 3**

(887) W. 3 cl.

Prereq.: 875 or equiv.

Introduction to thermodynamics. The main objective is training in the use of thermodynamics as a tool for solving chemical problems.

**882 Statistical Thermodynamics G 3**

(888) Sp. 3 cl.

Prereq.: 881.

An introduction to statistical thermodynamics, including quantum statistics, entropy and the third law, statistical-spectroscopic calculation of thermodynamic functions of gases, chemical equilibria, and vapor pressure.

**885 Colloquium in Chemistry G 1**

(910) A, W, Sp. 1 cl.

Prereq.: Graduate standing in Chem.

Required every qtr. of all registered graduate students in Chem.

A discussion of current research in Chemistry; all divisions.

**941 Theoretical Organic Chemistry G 3**

(847) A. 3 cl.

Prereq.: 2nd yr. graduate standing, 831-832.

941-942-943: a sequence of courses in advanced theoretical Organic Chemistry.

**942 Theoretical Organic Chemistry G 3**

(848) W. 3 cl.

Prereq.: 941.

Continuation of 941.

**943 Theoretical Organic Chemistry G 3**

(849) Sp. 3 cl.

Prereq.: 942.

Continuation of 942.

**970 Advanced Thermodynamics G 3**

(889) A. 3 cl.

Prereq.: 832.

Continuation of 881 and 882.



**971 Quantum Chemistry I G 3**

(861) A. 3 cl.

Prereq.: 533, Physics 113 or 232, 233; prereq. or concur. Math. 255 or 556, or equiv.

Basic quantum mechanics as a foundation for quantum chemistry; postulates, operators, eigenfunctions, eigenvalues and Schrodinger wave equations; one-dimensional problems including the harmonic oscillator.

**972 Quantum Chemistry II G 3**

(862) W. 3 cl.

Prereq.: 971 or equiv.

Angular momentum; matrix elements and representations; the hydrogenic atom; perturbation and variation methods, electron spin, and the helium atom; atomic structure and multiplet theory.

**973 Quantum Chemistry III G 3**

(863) Sp. 3 cl.

Prereq.: 972.

Electronic structure of molecules: hydrogen molecule and ion, methane, ethylene, benzene, etc.; molecular orbital, valence bond, and self-consistent field methods.

**981 Electronic Structure and Spectra of Molecules G 3**

(885) W. 3 cl.

Prereq.: 973 or equiv.

An extension of molecular orbital and valence bond theory to larger molecules than those considered in Chemistry 973.

**991 Seminar in Analytical Chemistry G 3**

(824) A. 3 cl.

Prereq.: Permission of instructor.

Repeatable to a maximum of 9 cr. hrs.

Topic to be announced.

**992 Seminar in Organic Chemistry G 3**

(850) A, W, Sp. 3 cl.

Prereq.: Chem. 2nd yr. graduate standing and 331, 332 or equiv. and permission of instructor.

Repeatable to a maximum of 12 cr. hrs.

Topic to be announced.

**995 Seminar in Inorganic Chemistry G 2 or 3**

(867) A. 2 cl.

Prereq.: 651 and 652 or equiv. and permission of instructor.

Repeatable to a maximum of 9 cr. hrs.

Topic to be announced.

**997 Seminar in Physical Chemistry G 3**

(891) A, W, Sp. 3 cl.

Prereq.: At least a 2nd yr. graduate standing in Physical Chem.

Repeatable to a maximum of 9 cr. hrs. with permission of instructor.

Topic to be announced.

**999 Research in Chemistry G Arr.**

(950) Su, A, W, Sp.

Research for thesis or dissertation purposes only.

**Chinese**

Office: 200 University Hall, 216 North Oval Drive

Associate Professor Ching (Chairman); Associate Professor Ch'en; Assistant Professor Lyell.

**101 Elementary Chinese U 5**

(401) A. 5 cl.

Ching.

**102 Elementary Chinese U 5**

(402) W. 5 cl.

Prereq.: 101.

Ching.

**103 Intermediate Chinese U 5**

(403) Sp. 5 cl.

Prereq.: 102.

Ching.

**104 Intermediate Chinese U 5**

(404) A. 5 cl.

Prereq.: 103.

Lee.

**251 Chinese Literature in English Translation U 3**

(551) A. 3 cl.

Introduction to the great literary works of the past several hundred years. These include *All Men Are Brothers*, *The Dream of the Red Chamber*, *Monkey*, and *Romance of the Three Kingdoms*. Lyell.**271 Elements of Chinese Thought U 3**

(571) W. 3 cl.

A survey of the major philosophical trends that have prevailed in China; discussion of Confucianism and Taoism in their various forms. Lyell.

**405 Chinese Conversation U 3**

(505) W. 3 cl.

Prereq.: 104 or permission of instructor.

Practice in conversation on timely topics of the day. Lee.

**406 Chinese Composition U 3**

(506) Sp. 3 cl.

Prereq.: 104 or permission of instructor.

Practice in composing simple writings; review of vocabulary and grammar. Lee.

**417\* Study Tour of Taiwan U 15**

(517) Sp. 15 cl., 2 weeks at OSU; 3 weeks in Taiwan.

Prereq.: 25 cr. hrs. of Chin. or permission of instructor.

Advanced work in conversation and reading in order to prepare for the tour. In Taiwan only Chinese will be spoken; some formal instruction will be given daily by the tour leaders.

**609 Advanced Reading, Conversation, and Composition I U G 3**

A. 3 cl.

Prereq.: 405 and 406 or permission of instructor.

Reading of contemporary prose and verse, presentation of oral and written reports, drill in tone and intonation, practice in translation.

**610 Advanced Reading, Conversation, and Composition II** U G 3

W. 3 cl.

Prereq.: 609 or permission of instructor.

Continuation of 609.

**611 Advanced Reading, Conversation, and Composition III** U G 3

Sp. 3 cl.

Prereq.: 610 or permission of instructor.

Continuation of 610.

**620 Study of the Chinese Writing System** U G 5

Sp. 4 cl.

Prereq.: 103 or permission of instructor.

A critical study of the origin, classification, composition, and development of the Chinese writing system, including problems in simplification and alphabetization. *Ching*.

**624 Chinese Phonetics** U G 5

A. 3 cl.

Prereq.: 101, Ling. 601 or permission of instructor.

A detailed analysis of the sound structure of Chinese dialects, especially Mandarin, and its relation to the sound structure of English. *Ching*.

**626 The Structure of the Chinese Language** U G 5

W. 3 cl.

Prereq.: 101, Ling. 601 or permission of instructor.

An investigation of the syntactic and phonological structure of Mandarin. *Ching*.

**627 The History of the Chinese Language** U G 3

Sp. 3 cl.

Prereq.: 626 or permission of instructor.

An investigation of the relations between modern Chinese and its earlier stages, ancient and archaic Chinese.

**651 Literary Chinese I** U G 3

(652) A. 3 cl.

Prereq.: 104 or permission of instructor.

Selected reading from representative authors of classical times. *Lyell*.

**652 Literary Chinese II** U G 3

W. 3 cl.

Prereq.: 651 or permission of instructor.

*Lyell*.

**653 Literary Chinese III** U G 3

Sp. 3 cl.

Prereq.: 652 or permission of instructor.

*Lyell*.

**661 Modern Chinese Literature** U G 3

(651) Sp. 3 cl.

Prereq.: 104.

A survey of Chinese literature of the past half-century. Reading in influential authors such as Lu Hsün, Pa Chin, and others. *Lyell*.

**671 History of Chinese Thought** U G 3

Sp. 3 cl.

Prereq.: 271 or permission of instructor.

Detailed examination of the major Chinese philosophies; readings from selected Chinese texts.

**693 Individual Studies in Chinese** U G 2-5

(695) A, W, Sp.

Prereq.: Permission of department.

Repeatable to a maximum of 10 cr. hrs.

**701 The Traditional Novel** U G 3

A. 3 cl.

Prereq.: 611 or permission of instructor.

A combination of lectures and readings from the great novels. *Ch'en*.

**702 The Traditional Drama** U G 3

W. 3 cl.

Prereq.: 611 or permission of instructor.

A lecture and reading course in Yuan and Ming drama. *Ch'en*.

**703 Traditional Poetry** U G 3

Sp. 3 cl.

Prereq.: 611 or permission of instructor.

Lectures and readings from Shih and Tz'u of various periods. *Ch'en*.

**704 Modern Plays and Poetry** U G 3

A. 3 cl.

Prereq.: 611 or permission of instructor.

A lecture and reading course covering the well-known playwrights and poets since 1919.

**705 The Modern Story and Essay** U G 3

W. 3 cl.

Prereq.: 611 or permission of instructor.

Stories and critical essays of the May 4 movement and the Communist period.

**706 The Modern Novel** U G 3

Sp. 3 cl.

Prereq.: 611 or permission of instructor.

Studies of three pre-1949 novels and one post-1949 novel.

**707 Chinese Bibliography** U G 3

W. 3 cl.

Prereq.: 406 or permission of instructor.

**709 Advanced Reading in Current Materials I** U G 3

A. 3 cl.

Prereq.: 611 or permission of instructor.

Critical and rapid reading of selections from Chinese texts with an emphasis on the humanities in both conventional and simplified characters.



**710 Advanced Reading in Current Materials II U G 3***W. 3 cl.**Prereq.: 611 or permission of instructor.*

Critical and rapid reading of selections from Chinese texts with an emphasis on linguistics in both conventional and simplified characters.

**711 Advanced Reading in Current Materials III U G 3***Sp. 3 cl.**Prereq.: 611 or permission of instructor.*

Critical and rapid reading of selections from Chinese texts with an emphasis on the social sciences in both conventional and simplified characters.

**999 Research in Chinese G Arr.***Su, A, W, Sp.**Repeatable.*

Research for thesis or dissertation purposes only.

## City and Regional Planning

Office: 107 Brown Hall, 190 West 17th Avenue

Professor Stollman; Associate Professors Gerckens and Mills; Adjunct Assistant Professor Crozier; Instructors and Lecturers.

**300 Outlines of City Planning U 3***Sp. 3 cl.**Prereq.: 4th yr. standing or permission of instructor.**Not open to students with credit for Arch. (709).*

Analysis of city planning practices and principles; examination of representative problems in contemporary urban development and proposed solutions. *Stollman.*

**731 Outlines of Urban Design U G 3***(791) A. 2 cl., 3 lab. hrs.**Prereq.: Graduate standing in City Plan., or senior standing in Arch., or permission of instructor.*

Elements and criteria of urban design; comparative evaluation of urban design work. *Gerckens.*

**742 History of City Planning to 1900 U G 3***W. 3 cl.**Prereq.: Senior standing or permission of instructor.*

History of city planning from the earliest discovered settlements to the beginnings of contemporary planning. *Gerckens.*

**794 Special Studies in City and Regional Planning U G 1-5***(799) Su, A, W, Sp.**Prereq.: Permission of instructor.*

794.01 City and Regional Planning History

794.02 Planning Theory

794.03 Regional Planning

794.04 Urban Design

794.05 Planning Analysis

794.06 Housing

794.07 Circulation

794.08 Open-space and Recreation

794.09 Community Facilities

794.10 Land-use Renewal

794.11 Urban Renewal

794.12 Unclassified

**811 Recent History of City and Regional Planning G 3***(721) W. 3 cl.**Prereq.: Graduate standing in City Plan.*

Development of City and Regional Planning since 1890; evolution of planning concepts and methods in response to urbanization and resource development; emphasis on American work. *Stollman.*

**812 Theory of City and Regional Planning G 3***(722) A. 3 cl.**Prereq.: Graduate standing in City Plan.*

Planning processes; the general plan; formulating goals; land development policies and decisions; alternative urban and regional forms; role and scope of planning. *Stollman.*

**813 Outlines of Regional Planning G 3***(793) Sp. 3 cl.**Prereq.: Graduate standing in City Plan. or in a Conserv. program.*

State, national and regional planning; components of regional development; regional analysis and design.

**832 City and Regional Planning Analysis G 5***(762) W. 3 cl., 6 lab. hrs.**Concur.: 842.*

Techniques of research and analysis in planning; land-use, employment, population, housing market, transportation studies. *Mills.*

**833 City and Regional Planning Analysis G 3***(763) Sp. 2 cl., 3 lab. hrs.**Prereq.: 832; concur. 843.*

Continuation of 832. Use of forecasts, analytic models; cost-benefit analysis and other tests of planning solutions. *Mills.*

**841 Introduction to Planning Design G 3***(751) A. 2 cl., 3 lab. hrs.**Prereq.: Graduate standing in City Plan.*

Principles and practices of environmental design applied to problems of urban scale; graphic presentation of planning information. *Gerckens.*

**842 Elements of City Planning Practice G 3***(752) W. 1 cl., 6 lab. hrs.**Prereq.: 841; concur. 832.*

Physical components of urban areas; residential, commercial, industrial, pedestrian and vehicular circulation, other community facilities; analysis of design criteria and standards. *Gerckens.*

**843 Elements of City Planning Practice G 5***(753) Sp. 3 cl., 6 lab. hrs.**Prereq.: 832, 842; concur. 833.*

Continuation of 842. *Gerckens.*

- 851 Planning Design** G 5  
(801) A. 15 lab. hrs.  
Prereq.: 833, 843.  
Preparation of general urban plans. *Crozier*.
- 852 Planning Design** G 5  
(802) W. 15 lab. hrs.  
Prereq.: 851.  
Continuation of 851. *Crozier*.
- 853 Planning Design** G 5  
(803) Sp. 15 lab. hrs.  
Prereq.: 852.  
Continuation of 852. *Crozier*.
- 861 Land-Use Controls** G 4  
(821) A. 3 cl.  
Prereq.: Graduate standing in City Plan.  
Legal basis of land-use controls in the United States, provisions, procedures and issues in zoning, subdivision regulation, urban renewal, building and housing codes, acquisition of real property for public use. *Simmons*.
- 862 City and Regional Planning Administration** G 3  
(822) W. 3 cl.  
Prereq.: Graduate standing in City Plan.  
Administration of official planning agencies; professional practice; capital improvement programming. *Stollman*.
- 899 Interdepartmental Seminar** G 1-5  
Su, A, W, Sp.  
(See under Interdepartmental Seminars.)
- 999 Research in City and Regional Planning** G Arr.  
(950) Su, A, W, Sp.  
Research for thesis purposes only.
- 403 Surveying II** U 5  
(506) Sp. 3 cl., 2 3-hr. lab.  
Prereq.: 401, Engr. Mech. 200.  
Topographic mapping, curves, and earthwork. *Purtz*.
- 404 City Surveying** U 3  
(650) Sp. 2 cl., 1 3-hr. lab.  
Prereq.: Geod. Sc. (640).  
Not open to students with credit in Geod. Sc. (650).  
City control surveys, coordinates of lot and block corners; measurement of details, computation of areas; setting out city plans.
- 410 Public Health Engineering** U 3  
(620) W. 3 cl.  
Prereq.: Chem. 113 or equiv., concur. Microbiol. 607 or equiv.  
A study of the human environment from a health engineering point of view, with emphasis on those facets of the health picture that are controllable by engineering developments. *Cosens and Shumate*.
- 430 Structural Analysis I** U 4  
(604) W. 4 cl.  
Prereq.: Engr. Mech. 210.  
Stresses in statically determinate frames and trusses. Influence lines, moving loads, space frames. *Chen, Ojalvo, and Smith*.
- 510 Principles of Hydraulics** U G 3  
(616) W. 3 cl.  
Prereq.: Math. 151, Physics 111 or 231.  
Not open to students majoring in Civil E.  
Basic fluid dynamic concepts with special application to flow through porous media, stream flow measurements, solids transport, and ocean hydrodynamics. *Ricca*.
- 511 Fluid Mechanics** U 3  
(611) Sp. 3 cl.  
Prereq.: Engr. Mech. 410.  
Fluid properties; fluid statics; viscous and turbulent fluid flow; dimensional analysis and similitude. *Ricca*.
- 512 Applied Hydraulics** U G 3  
(728) A. 3 cl.  
Prereq.: 511 or Engr. Mech. (610).  
Civil engineering applications of fundamental fluid mechanics principles including pipe and open channel flow, masonry and earth dams, and pumps, with laboratory studies to support the above topics. *Cosens and Ricca*.
- 530 Elementary Structural Engineering** U G 3  
(711) W. 3 cl.  
Prereq.: Engr. Mech. 420.  
Not open to students majoring in Civil E.  
Design of simple steel structures; introduction to reinforced concrete. *Purtz*.
- 531 Structural Analysis II** U G 4  
(741) Sp. 4 cl.  
Prereq.: 430 or 530, Engr. Mech. 420.  
Deflection in trusses, beams and frames; solution of indeterminate structures by methods of consistent deformations, and moment distribution. *Chen, Ojalvo, and Smith*.

## Civil Engineering

Office: 228 Civil and Aeronautical Engineering Building, 2036 Neil Avenue

Professors Gray (Chairman), Karrer, Large (Emeritus), Ojalvo, Prior (Emeritus), Schwar, Smith, Vandegrift (Emeritus), and Wu; Associate Professors Bishara, Bletzacker, Chen, Coffman, Cosens, Hanna, Hong, Majidzadeh, Mintzer, Montz (Emeritus), Purtz, and Treiterer; Assistant Professors Birkhoff, Hooper, Pagen, Ricca, and Shumate; and Instructor.

- 401 Surveying I** U 5  
(502) A, W. 3 cl., 2 3-hr. lab.  
Prereq.: Physics 231.  
Theory and practice of measurements; orientation by celestial observations. *Purtz*.
- 402 Photogrammetry** U 4  
(504) W. 3 cl., 1 3-hr. lab.  
Prereq.: 401.  
Fundamental geometry and photogrammetric applications to engineering. *Mintzer*.



**551 Soil Mechanics I U 4**

(622) Sp. 3 cl., 1 3-hr. lab.

Prereq. or concur.: Engr. Mech. 420.

Basic and engineering soil properties; fluid flow through soils; compaction, effective stresses and compression. *Coffman, Hooper, and Wu.*

**552 Civil Engineering Materials U 4**

(623) A. 3 cl., 1 3-hr. lab.

Prereq.: 551.

Composition, properties, and production of portland cement concrete, bituminous materials and bituminous mixtures. *Majidzadeh and Pagen.*

**570 Transportation Planning U G 5**

(710) A. 4 cl., 2-hr. seminar.

Prereq.: Permission of instructor.

Not open for credit to students in Civil E.

An analysis of engineering factors affecting location, geometric design, operation, maintenance and management of coordinated transportation systems. *Karrer.*

**571 Transportation I U 4**

(624) A. 3 cl., 1 2-hr. lab.

Prereq.: 403.

A study of the development, location, geometric design, economics, finances, and operation of transportation systems. *Karrer and Treiterer.*

**581 Principles of Rock Mechanics U 4**

(661) Sp. 4 cl.

Prereq.: 552, Geol. 100.

Fundamental rock properties and the evaluation and design of competent underground openings; drilling and blasting theories, explosives, and their application. *Verner.*

**582 Mining Systems Engineering U 3**

(662) A. 3 cl.

Prereq.: 552, Geol. 100.

Fundamentals of mining systems for bedded, massive, vein, and surface deposits. *Verner.*

**589 Inspection Trip U 2**

(669) Sp.

Prereq.: Permission of instructor.

A trip to coal, metallic, and non-metallic mines plus mineral processing and preparation plants; a written report is required. *Verner.*

**601 Observational Analysis U G 3**

(609) W. 2 cl., 2 2-hr. lab.

Prereq.: 401, Math. 254.

Theory and applications of observational analysis. *Purtz.*

**611 Principles of Sanitary Engineering I U G 5**

(703) W. 5 cl.

Prereq.: 512.

Not open for graduate credit to students majoring in Civil E.

Basic principles of water resources including hydrology; reservoirs; design of transmission, distribution, and collection systems; supply and demand rates; statistical methods; construction materials and methods. *Cosens.*

**612 Principles of Sanitary Engineering II U G 5**

(716) Sp. 5 cl.

Prereq.: 512, 611.

Not open for graduate credit to students majoring in Civil E.

Unit operation in water supply and waste water recovery including selection, treatment methods and equipment, and water quality criteria. *Cosens.*

**613 Applied Hydrology U G 3**

(742) W. 3 cl.

Prereq.: 512 or equiv.

Basic principles of the hydrologic cycle; precipitation, hydrographs, unit graphs, drainage basin characteristics, infiltration, ground water hydraulics, run-off, flood and drought magnitude and probability, flood routing. *Cosens and Ricca.*

**631 Structural Design I U 5**

(714) A. 3 cl. 2 2-hr. lab.

Prereq.: 531.

Not open to students with credit for (613).

Elastic design of simple steel structures, introduction to plastic design of continuous beams and simple bents. *Smith.*

**632 Reinforced Concrete Design I U G 5**

(701) W, Sp. 5 cl.

Prereq.: 552, 531.

Not open for graduate credit to students majoring in Civil E.

Analysis and proportioning of reinforced concrete members. *Bishara and Chen.*

**651 Soil Mechanics II U G 4**

(725) W. 3 cl., 1-3 hr. lab.

Prereq.: 551.

Not open for graduate credit to students majoring in Civil E.

Stress distribution; shear phenomena, lateral earth pressure, settlement, soil stability. *Coffman, Hooper, and Wu.*

**652 Mechanical Properties of Engineering Materials U G 4**

(750) W. 4 cl.

Prereq.: 552, Engr. Mech. 521, Met. E. 400 or permission of instructor.

Structure of liquids and solids, elasticity, plasticity and flow, viscosity, viscoelasticity and surface phenomena. *Majidzadeh.*

**671 Transportation II U 3**

(724) W. 3 cl.

Prereq.: 552, 571.

Design, construction and maintenance of embankments, drainage structures, and pavements for highways and airports. *Karrer and Treiterer.*

**672 Fundamentals in Traffic Engineering U G 3**

(722) Sp. 2 cl., 1 3-hr. lab.

Prereq.: 571.

An introduction to traffic characteristics, measurements, controls and regulations; elements in traffic operation, design and planning. *Schwar and Treiterer.*

- 673 Highway Location and Design U G 3**  
(738) W. 2 cl., 1 3-hr. lab.  
Prereq.: 571.

Geometric design of roads and streets; determination of alignment, grade, intersections, and traffic capacity of rural roads. *Karrer and Treiterer.*

- 680 Mine Valuation and Mineral Economics U 3**  
W. 3 cl.  
Prereq.: 582, Econ. (503) or equiv.

Theories of mineral sampling, calculation of ore reserves, present and future worth of mineral properties, and mineral property examination; economic case studies of major minerals. *Verner.*

- 681 Mining Plant Engineering I U G 3**  
(761) A. 3 cl.  
Prereq.: 512, concur. 582.

Not open for graduate credit to students majoring in Civil E.

Principles of underground ventilation and compressed air systems and their application to mining problems. *Verner.*

- 682 Mining Plant Engineering II U G 3**  
(762) W. 3 cl.  
Prereq.: 582, Engr. Mech. 410, concur. Elec. E. 500.

Not open for graduate credit to students majoring in Civil E.

Principles of underground haulage and energy transmission systems and their application to mining problems. *Verner.*

- 701 Civil Engineering Applications U G 4 of Photo-Interpretation**  
(746) A. 2 cl., 2 2-hr. lab.  
Prereq.: 402, 671, 1 course in Geol.

Principles of photo interpretation, geology, and geomorphology applied to construction, transportation and hydraulic problems. Studies of air-photo indices of soils, aggregate sources and construction problems. *Mintzer.*

- 711 Sanitary Engineering U G 3 Laboratory**  
(748) A. 2 3-hr. cl. and lab.  
Prereq.: 612, Chem. 118 or equiv., Microbiol. 607 or equiv.

A laboratory study of the sanitary engineering indices pertinent to the control of water, sewage, streams, and industrial waste quality. *Hanna and Shumate.*

- 712 Sanitary Engineering Design U G 3**  
(749) Sp. 3 cl.  
Prereq.: 612.

The design of unit operations and processes employed in the field of water supply and waste water including data collection and control instrumentation. *Cosens and Hanna.*

- 713 Environmental Engineering U G 3 Measurements**  
W. 2 cl., 2 2-hr. lab.  
Prereq.: 711, Chem. 221 or permission of instructor.

The application of advanced physical and chemical measurements to environmental engineering problems; instrumentation involving spectrophotometric, chromatographic, respirometer, and radiation measurement techniques. *Shumate.*

- 716 Water Resources Engineering U 3 Projects**  
(743) A. 3 cl.  
Prereq.: 612.

An integrated study of design principles and of methods used on engineering projects involving dams, reservoirs and related facilities.

- 731 Reinforced Concrete Design II U G 4**  
(705) A, Sp. 4 cl.  
Prereq.: 632.

Not open for graduate credit to students majoring in Civil E.

Analysis and design of reinforced concrete systems. *Bishara and Chen.*

- 732 Timber Design U G 3**  
(715) W. 3 cl.  
Prereq.: 631, Engr. Mech. 521.

Basic properties of and design practice for timber when used as a construction material in engineering structures. *Smith.*

- 734 Design of Arch Structures U G 3**  
Sp. 3 cl.  
Prereq.: 531, 631, 632.

The analysis and design of arch structures. *Ojalvo and Smith.*

- 736 Bridge Engineering Projects U 4**  
(744) W. 4 cl.  
Prereq.: 731.

Integrated student projects involving applications of principles and methods used in the design and construction of bridge structures.

- 737 Prestressed and Precast Concrete Structures U G 3**  
A. 3 cl.  
Prereq.: 632.

Structural analysis and proportioning of prestressed concrete members and of precast structural concrete systems. *Bishara.*

- 751 Principles of Foundation U G 4 Analysis and Design**  
(726) A. 4 cl.  
Prereq.: 651.

Subsurface exploration; shallow foundations; piles and caissons; embankments and excavations. *Wu.*

- 752 Soil Stabilization U G 4**  
(731) W. 2 cl., 2 3-hr. lab.  
Prereq.: 651.

Study of principles of soil stabilization for highway surfaces; design, durability, mechanical properties, construction. *Coffman and Majidzadeh.*

- 771 Construction Methods and Equipment U G 3**  
(723) A. 2 cl., 1 3-hr. lab.  
Prereq.: 671.

Selection and management of construction equipment in building of highways, dams, airports, bridges, and structures. *Karrer.*

- 772 Bituminous Materials and Mixtures U G 4**  
(739) Sp. 3 cl., 1 5-hr. lab.  
Prereq.: 671.



Types and chemical composition of asphaltic materials, physical and chemical properties of asphaltic materials and mixtures. *Pagen.*

### 773 Management of Engineering Construction U G 4

*W, Sp. 3 cl., 1 2-hr. lab.*

*Prereq.: 771 or permission of instructor.*

Planning, scheduling, and supervision of engineering construction projects; use of Critical Path Method, bar charts, and other techniques. *Karrer.*

### 776 Highway Engineering Projects U 4

(745) *Sp. 3 cl., 1 3-hr. lab.*

*Prereq.: 512, 651, 671.*

Integrated student projects involving the application of principles and methods used in the design and construction of multi-lane highways.

### 794 Advanced Civil Engineering U G 3-5

(799) *Su, A, W, Sp.*

*Prereq.: Senior or graduate standing with point average of 2.5 or better, and permission of department chairman.*

*Repeatable to a maximum of 20 cr. hrs., not more than 10 of which shall be in any one of the following subdivisions.*

The advanced student is given opportunity to pursue advanced study. Work undertaken may be elected in the following fields of civil engineering:

- Structural Engineering.
- Soil Mechanics and Foundations.
- Sanitary Engineering.
- Highway and Transportation Engineering.
- Geodetic and Photogrammetric Engineering.
- Construction.
- Materials.
- Hydraulics and Hydrology.

### 801 Geodesy G 3-5

(808) *A, Sp.*

*Prereq.: 601 and Math. 255, Civil E.: Master's candidates.*

Triangulation reconnaissance, use and computation of geographic coordinates, study of various systems of plane coordinates, the more common map projections, geodetic astronomy and other problems involving the figure of the earth.

### 810 Principles of Advanced Sanitary Engineering G 5

(831) *A. 3 cl., 2 3-hr. lab.*

*Prereq.: 410, 612, 711.*

Advanced analysis and design theory pertinent to the field of sanitary engineering, including water supply, waste water disposal, stream and environmental sanitation and atmospheric pollution. *Cosens and Hanna.*

### 811 Principles of Advanced Sanitary Engineering G 5

(832) *W. 3 cl., 2 3-hr. lab.*

*Prereq.: 810.*

Continuation of 810.

### 812 Principles of Advanced Sanitary Engineering G 5

(833) *Sp. 3 cl., 2 3-hr. lab.*

*Prereq.: 811.*

Continuation of 811.

### 830 Advanced Structural Engineering I G 5

(826) *Sp. 4 cl., 1 3-hr. lab.*

*Prereq.: 531 or equiv.*

Analysis and design of statically indeterminate beams, frames and trusses, using classical methods of analysis. *Smith.*

### 831 Advanced Reinforced Concrete G 5

(827) *W. 5 cl.*

*Prereq.: 731, 737.*

Concrete structural analysis and design; special structural systems and elements. *Bishara.*

### 832 Plastic Analysis and Design G 5

(828) *A. 5 cl.*

*Prereq.: 531, 631 or equiv.*

Structural behavior in the inelastic range; prediction of collapse loads; structural steel design according to the plastic method. *Ojalvo.*

### 833 Concrete Shell Structures G 5

(829) *Sp. 5 cl.*

*Prereq.: 531, 731, Math. 412.*

Analysis and design of folded plate, barrel, and other prismatic structures; domes, hyperbolic and elliptical paraboloids. *Ojalvo.*

### 834 Structural Analysis and Design for Dynamic Disturbances G 5

(835) *Sp. 5 cl.*

*Prereq.: 631, 731 Engr. Mech. 410, or equiv. or permission of instructor.*

Structural dynamics; principles and practice of dynamic design; numerical and graphical methods. *Chen.*

### 850 Seepage in Permeable Materials G 5

(810) *A. 5 cl.*

*Prereq.: 551.*

Analysis of seepage volume and stresses in connection with excavation, dams, wells, slopes and subsurface drainage. Electroosmosis. *Gray and Wu.*

### 851 Advanced Soil Properties G 5

(815) *W. 3 cl., 6 lab. hrs.*

*Prereq.: 651.*

Detailed study and analysis of the mechanical properties of soils, with applications to foundation behavior. *Gray and Wu.*

### 852 Structural Design of Pavements G 5

(805) *Su. 5 cl.*

*Prereq.: 851.*

Stresses in pavements and behavior under moving loads, design of flexible and rigid pavements for highways and airports. *Pagen.*

### 853 Soil-Structure Interaction I G 5

(816) *Sp. 5 cl.*

*Prereq.: 851.*

Beams and struts in elastic foundation; pavement slabs; analysis and design of pile groups resisting lateral loads; stress distribution in soils. *Gray.*

### 854 Slope Stability Theory G 3

(817) *W. 3 cl.*

*Prereq.: 651, 850.*

Quantitative analysis of stability of natural slopes; applications of theories of soil mechanics to slope stability.

- 855 Soil-Structure Interaction II** G 5  
(818) Sp. 5 cl.  
Prereq.: 851.

Plastic equilibrium of soil masses; bearing capacity theories; slope stability analysis; earth pressure theories; comparison between theoretical and experimental results. *Coffman and Wu.*

- 856 Viscoelasticity I** G 5  
Sp. 5 cl.  
Prereq.: 652, Math. 413.

Viscoelastic materials and their characteristics, discrete element models, spectral representation, creep and relaxation functions, and dynamics of viscoelastic behavior. *Majidzadeh and Pagen.*

- 857 Theory of Viscoelasticity** G 5  
A. 5 cl.  
Prereq.: 856, Math. 414.

Operational form of the stress-strain equation, stress analysis in viscoelasticity, quasi-static problems, and dynamic problems. *Majidzadeh and Pagen.*

- 858 Soil Dynamics** G 3  
A. 3 cl.  
Prereq.: 851, Eng. Mech. 731 or permission of instructor.

Stress waves in soils and vibration in soil masses; soil behavior under impact and repeated loading; design problems including vibrating foundations, blast pressures, and seismic stability. *Wu.*

- 870 Highway Administration** G 5  
(825) Sp. 5 cl.  
Prereq.: 672.

A study of organization for planning, constructing, maintaining, and operating systems of roads and streets. *Karrer.*

- 871 Traffic Engineering I** G 5  
(821) A. 4 cl., 1 3-hr. lab.  
Prereq.: 671, Engr. Mech. 200 or equiv., Math. 520 or concur.

Traffic characteristics and studies: theory of traffic flow, dynamics of traffic movement, intersection performance, capacity, parking, accidents, origin-destination. *Schwar and Treiterer.*

- 872 Traffic Engineering II** G 5  
(820) W. 4 cl., 1 3-hr. lab.  
Prereq.: 871 or equiv.

Principles of traffic operations in rural and urban areas: traffic laws, regulations, control and administration; street lighting, bus operation, parking and terminal operations. *Schwar.*

- 873 Traffic Engineering III** G 5  
Sp. 4 cl., 1 3-hr. lab.  
Prereq.: 872 or equiv.

Urban Transportation: principles of trip generation, forecasting distribution and assignment, network analysis, mass transportation planning, terminal location, evaluating alternative urban transportation systems, trends in urban technology. *Schwar.*

- 881 Research Seminar** G 1  
(949) A. 1 cl.

Introduction to research activity.

- 885 Advanced Civil Engineering** G 3-5  
(899) Su, A, W, Sp.

Prereq.: Graduate standing and permission of department chairman.

Repeatable to a maximum of 20 cr. hrs., not more than 10 of which shall be in any one of the fields listed below.

This course is intended to give the advanced students opportunity to pursue advanced study. Work undertaken may be elected in the following fields of civil engineering.

- Structural Engineering.
- Soil Mechanics and Foundations.
- Sanitary Engineering.
- Highway and Transportation Engineering.
- Geodetic and Photogrammetric Engineering.
- Construction.
- Materials.

- 896 Interdepartmental Seminar in Polar and Alpine Studies** G 1-3  
Sp.

(See under Interdepartmental Seminars.)

- 999 Research in Civil Engineering** G Arr.  
(950) Su, A, W, Sp.

Research for thesis or dissertation purposes only.

## Classics

Office: 217 Derby Hall, 154 North Oval Drive

Associate Professor Morford (Acting Chairman); Professors Abbott, Babcock, Forbes, W. R. Jones, and Titchener; Associate Professor Lenardon; Assistant Professors Barmann, Davis, Holsinger, and Schlam.

See also Greek and Latin.

- 210 Classical Background of Scientific Terminology** U 3

(510) A, W, Sp. 3 cl.

Study of technical and scientific terms from Greek and Latin sources; roots, word elements, word formation, analysis; helpful in medical, biological and kindred studies.

- 220 Greek Literature in Translation** U 5

(520) Su, A, W, Sp. 5 cl.

- 221 Latin Literature in Translation** U 5

(521) A, W, Sp. 5 cl.

- 222 Classical Mythology** U 5

(522) A, W, Sp. 5 cl.

- 224 Classical Civilization: Greece** U 3

(524) W. 3 cl.

An introduction to ancient Greek civilization, concentrating upon important facets of literature, history, art, and archaeology. *Lenardon.*

- 225 Classical Civilization: Rome** U 3

Sp. 3 cl.

An introduction to the civilization of ancient Rome, concentrating upon important facets of literature, history, art and archaeology. *Babcock.*



## Comparative Literature and Languages

Office: 112 Derby Hall, 154 North Oval Drive

Mr. Wayne Lawson (Acting Chairman); Associate Professor Haber.

### 101 Introduction to Western European Literature: The Greek Contribution U 3

(401) A.  
1st or 2nd yr. standing only.

Development of Greek ideas and ideals from Homer to Plato. A course in great books of the western world and the part they play in the development of modern European and American culture.

### 102 Introduction to Western European Literature: The Latin Contribution U 3

(402) W.  
1st or 2nd yr. standing only.

Virgil, Lucretius, Dante, Cervantes. A course in great books of the western world and the part they play in the development of modern European and American culture.

### 103 Introduction to Western European Literature: The Modern World U 3

(403) Sp.  
1st or 2nd yr. standing only.

Chaucer, Milton, Moliere, Shakespeare, Goethe. A course in great books of the western world and the part they play in the development of modern European and American culture.

## Computer and Information Science

Office: 400 Caldwell Laboratory, 2024 Neil Avenue

Professors Yovits (Chairman), Hildebrandt (Associate Chairman), Pepinsky, and Reeves; Associate Professor Rothstein; Assistant Professors Ernst, Finley, Foulk, Kerr, and Randels; and Lecturers.

### 241 Introduction to Digital Computer Programming U 5

(Math 590) Su, A, W, Sp. 5 cl.  
Prereq.: Math. 116 or 150.

Introduction to programming language; laboratory experience with computers installed in Computer Center; scientific, statistical and business applications.

### 541 Numerical Analysis I U G 5

(Math 692) Su, A, W, Sp. 5 cl.  
Prereq.: 241 or Eng. Mech. 200, or equiv.; Math. 255 or 556 or equiv.; or permission of instructor.

Basic techniques of numerical analysis; finite differences, interpolation, solution of equations, integration, difference and differential equations; laboratory use of computers.

### 543 Programming for Digital Computers I U G 5

(Math 695) Su, A, W, Sp. 5 cl.

Prereq.: 241 or 541 or Eng. Mech. 200 or equiv.

Expert use of programming language; design and use of source language subroutines; input-output facilities; programming problems the storage requirements of which exceed available internal storage.

### Engineering Psychology

(See under Psychology 620.)

### 641 Programming for Digital Computers II U G 5

(Math 699P) A, Sp. 5 cl.

Prereq.: 543.

Symbolic assembly language and macro assembler programming; organization and data flow in typical computers.

### 642 Numerical Analysis II U G 5

(Math 694W) Sp. 5 cl.

Prereq.: 541, and Math. 571 or Math. 601; or permission of instructor.

Numerical treatment of systems of linear equations, inversion of matrices, and characteristic roots and vectors of matrices.

### 643 Linear Programming U G 5

A. 5 cl.

Prereq.: 642 or permission of instructor.

Theory of linear programming methods; problem formulation; study of principal features of L/P codes; post-optimal analysis.

### 645 Numerical Solution of Differential Equations U G 5

(Math 698) W. 5 cl.

Prereq.: 541, and Math. 255 or Math. 556; or permission of instructor.

Ordinary differential equations; Milne's method, Simpson's method, etc.; two point boundary problems; hyperbolic, elliptic, parabolic partial differential equations; advanced programming techniques; experiments using computers.

### 650 Digital Computer Organization U G 5

(Math 699L) Sp. 5 cl.

Prereq.: 641.

Boolean algebra, simplification of switching circuits, memory elements, design of arithmetic units and control units, error-correcting codes.

### 693 Individual Studies U G 1-5

Su, A, W, Sp.

Prereq.: Permission of instructor.

Repeatable to a maximum of 15 cr. hrs.

This course is designed to give the student an opportunity to pursue special studies not otherwise offered.

### 694 Special Group Studies U G 1-5

Su, A, W, Sp.

Prereq.: Permission of instructor.

Repeatable to a maximum of 15 cr. hrs.

This course is designed to give the student an opportunity to pursue special studies not otherwise offered.

**705 Information Theory and the Information Sciences U G 5**

A. 5 cl.

Prereq. or concur.: Math. 521.

Introduction to the broader applications of Information Theory as concerned with the Information Sciences. *Finley.*

**712 Man-Machine Interface U G 5**

W. 5 cl.

Prereq.: Math. 254, Psychol. 620.

Information continuity and system operation; information display and regulation; role and usage of operator in information acquisition and transmissions, automation, machine augmentation of operator function. *Ernst.*

**720 Introduction to Linguistic Analysis U G 5**

W. 5 cl.

Prereq.: Permission of instructor.

Not open to students with credit for Ling. 601.

Introduction to language structure; grammatical description of language; mathematical properties of language representative of information in sentences. *Langendoen.*

**725 Basic Concepts of Self-Organizing Systems U G 3**

Sp. 3 cl.

Prereq. or concur.: Math. 521.

Basic principles of adaptive systems; examples drawn from game-playing programs, homeostatic mechanisms, and self-regulatory systems. *Finley.*

**730 Basic Concepts in Artificial Intelligence U G 5**

W. 5 cl.

Prereq.: 705 or concur., Math. 521.

Basic concepts of artificial learning and intelligent systems; theories, contemporary models; implementation by hardware and computer simulation. *Finley.*

**740 Advanced Computer Systems Programming U G 5**

(Math 790) W. 5 cl.

Prereq.: 641 or permission of instructor.

Design of symbolic programming systems and algebraic compilers; dynamic storage assignment; symbol manipulation, information retrieval, and related topics; classroom exercises involve use of computers.

**746 Advanced Numerical Analysis U G 5**

Sp. 5 cl.

Prereq.: 642 and 645; or permission of instructor.

A careful treatment of some of the principal numerical algorithms; complete error analysis; recent developments will be emphasized. *Hildebrandt.*

**750 Modern Methods of Information Storage and Retrieval U G 3**

A. 3 cl.

Prereq.: Math. 254.

Fundamental and modern concepts of storing and retrieving information; current problems and problem solutions. *Rush.*

**751 Fundamentals of Document-Handling Information Systems U G 3**

W. 3 cl.

Prereq.: 750.

Fundamentals of information systems: types of systems; design principles; inputs; storage and maintenance; outputs; vocabulary control; monitoring and management; performance evaluation. *Liston.*

**752 Analysis and Synthesis of Information Systems U G 4**

Sp. 3 cl., 1 2-hr. lab.

Prereq.: Math. 521.

An introduction to the methodology and techniques of the design and digital-computer simulation of deterministic and stochastic information processing systems; examination of several important contemporary simulation studies. *Finley.*

**753 Theory of Indexing U G 5**

W. 5 cl.

Prereq.: 750.

Purposes of indexes; ordering methods; types of indexes; human and automatic indexing; vocabulary control; coding of information; reliability; compilation and evaluation. *Rush.*

**754 Language Processing for Information Storage and Retrieval U G 3**

Sp. 3 cl.

Prereq.: 750.

Aspects of natural and artificial language processing and its interaction with information storage and retrieval; emphasis on the current state of the art. *Rush.*

**760 Selected Topics in the Mathematics of Information Handling I U G 3**

A. 3 cl.

Prereq. or concur.: Math. 521 and 571.

Repeatable to a maximum of 6 cr. hrs.

Elements of mathematical theories underlying deterministic and stochastic information systems along with associated mathematical techniques. *Saltzer.*

**761 Selected Topics in the Mathematics of Information Handling II U G 3**

W. 3 cl.

Prereq. or concur.: Math. 521 and 571.

Repeatable to a maximum of 6 cr. hrs.

Elements of mathematical theories underlying deterministic and stochastic information systems along with associated mathematical techniques. Continuation of 760. *Saltzer.*

**793 Individual Studies U G 1-5**

Su, A, W, Sp.

Prereq.: Permission of instructor.

Repeatable to a maximum of 15 cr. hrs.

This course is designed to give the individual student an opportunity to pursue special studies not otherwise offered.

**794 Special Group Studies U G 1-5**

Su, A, W, Sp.

Prereq.: Permission of instructor.

Repeatable to a maximum of 15 cr. hrs.

This course is designed to give the student an opportunity to pursue special studies not otherwise offered.

**812 Computer and Information Science Research Methods G 5**

Sp. 4 cl., 1 2-hr. lab.

Prereq.: Math. 521 and 522.



Research strategy, statistical evaluation, design, analysis, and interpretation of data obtained from information systems experimentation. *Ernst.*

### Advanced Engineering Psychology

(See under Psychology 818)

#### 820 Computational Linguistics G 3

Sp. 3 cl.

Prereq.: 720 or Ling. 601, and Math. 254.

Repeatable to a maximum of 6 cr. hrs.

Mathematical and computational techniques in the study of language: theoretical foundations and applications. *Josselson.*

#### 865 Seminar on Socio-Psychological Aspects of the Information Sciences G 3

W. 3 cl.

Prereq.: Permission of instructor.

Ecological, organization, interpersonal, and intrapersonal aspects of information, production, exchange, and use. *Pepinsky.*

#### 889 Advanced Seminar in Computer and Information Sciences G 2-5

Su, A, W, Sp. 1-5 cl.

Prereq.: Permission of instructor.

Repeatable to a maximum of 20 cr. hrs.

Consideration of selected topics in Computer and Information Sciences and topics related to the theory and application of the Information Sciences. *Yovits.*

#### 994 Advanced Special Group Studies G 1-5

Su, A, W, Sp.

Prereq.: Permission of instructor.

Repeatable to a maximum of 10 cr. hrs.

This course is designed to give the student an opportunity to pursue special studies not otherwise offered.

#### 999 Research G Arr.

Su, A, W, Sp.

Research for thesis or dissertation purposes only.

## Conservation

Office: 241 Lord Hall, 124 West 17th Avenue

C. A. Dambach (Chairman of Committee).

### GENERAL PREREQUISITES FOR COURSES NUMBERED 200

Unless otherwise indicated, the prerequisites for 200 courses are 45 cr. hrs. in collegiate courses, exclusive of ROTC and Phys. Ed.; or specified course(s) numbered 100-199.

#### 201 Introduction to Conservation of Natural Resources U 3

(401) A, Sp. 3 cl. and 1 2-day field trip.

An orientation on the nature and scope of natural resources and the technical, economic, social, and political aspects of conservation. *Good, Johnson, and Dambach.*

#### 202 Conservation Agencies U 3

(514) W. 3 cl.

Prereq.: 201.

Representatives of governmental agencies, private organizations, and university departments present programs and problems in their areas of conservation work. *Johnson.*

### GENERAL PREREQUISITES FOR COURSES NUMBERED 300 AND 400

Unless otherwise indicated, the prerequisites for 300 and 400 courses are 90 cr. hrs. in collegiate courses, exclusive of ROTC and Phys. Ed.; or specified course(s) numbered 100-399.

#### 489 Field Work in Conservation U 5

(561) A, W, Sp. 10 weeks' work experience.

Prereq.: 201 and permission of instructor.

Having secured approval prior to this work experience, the student registers for this course the following quarter, in addition to his normal load, and submits a written report to his adviser. *Staff of cooperating departments.*

### GENERAL PREREQUISITES FOR COURSES NUMBERED 600

Unless otherwise indicated, the prerequisites for 600 courses are 15 cr. hrs. in courses in the same discipline numbered 300 or higher, or 10 cr. hrs. in courses numbered 300 or higher in the same discipline, plus 10 cr. hrs. in courses numbered 300 or higher in specified allied disciplines.

### Natural Resources Problems, Programs, and Policies

(See Agr. Ec. 680)

#### 693 Individual Studies U G 2, 3 or 5

Su, A, W, Sp.

Prereq.: Permission of instructor.

Repeatable to a maximum of 10 cr. hrs.

## Dairy Science

Office: 116 Plumb Hall, 735 Stadium Drive.

Professors VanDemark (Chairman), Brakel, Conrad, Fechheimer, Gilmore (Associate Chairman, Wooster), Harvey, Hibbs, Krauss, Ludwick, and McGrew; Associate Professors Barr, Kaeser, Porter, Porterfield, Stautbus, and Taylor; Assistant Professors Allaire, Brum, Gomes, Himes, Palmquist, and Rausch; Instructors Fuller, Jacquemin, Neuhardt, Rader, and Sechrist.

### Domestic Animals in the Service of Man

(See Animal Sc. 100)

(Offered in cooperation with the Departments of Dairy Sc. and Poultry Sc.)

### GENERAL PREREQUISITES FOR COURSES NUMBERED 200

Unless otherwise indicated, the prerequisites for 200 courses are 45 cr. hrs. in collegiate courses, exclusive of ROTC and Phys. Ed.; or specified course(s) numbered 100-199.

#### 201 Fundamentals of Dairy Science U 5

(401) A, W. 3 cl., 2 2-hr. lab.

Prereq.: Biol. 100.

The production phases of the dairy industry and the physiological systems of dairy animals. *Brakel.*

**207 Dairy Cattle Type Evaluation U 3**

(507) Sp. 1 2-hr. lab., 1 4-hr. lab.

Prereq.: 201 and 15 cr. hrs. in Biol. Sc.

Dairy breed type standards and their application to herd improvement. *Kaesler*.**GENERAL PREREQUISITES FOR COURSES  
NUMBERED 300 AND 400**

Unless otherwise indicated, the prerequisites for 300 and 400 courses are 90 cr. hrs. in collegiate courses, exclusive of ROTC and Phys. Ed.; or specified course(s) numbered 100-399.

**340 Dairy Herd Management U 5**

(504) W. 3 cl., 2 2-hr. lab.

Prereq.: 201 and Animal Sc. 430.

Problems and practices concerned with efficient production of milk and successful operation of a dairy herd. *Kaesler*.**420 Principles of Animal Improvement U 5**

(520) A, W, Sp. 5 cl.

Prereq.: 201 or Animal Sc. 200 or Poul. Sc. 200, Math. 150, and Biol. 150.

(Offered in cooperation with the Departments of Animal Sc. and Poul. Sc.)

An introduction to the methods available for bringing about genetic change in farm animals. *Fechheimer, Jaap, and Swiger*.**Principles of Animal Nutrition**

(See Animal Sc. 430.)

(Offered in cooperation with the Departments of Dairy Sc. and Poul. Sc.)

**GENERAL PREREQUISITES FOR COURSES  
NUMBERED 500**

Unless otherwise indicated, the prerequisites for 500 courses are 15 cr. hrs. in courses in the same discipline numbered 200 or higher, or 10 cr. hrs. in courses numbered 200 or higher in the same discipline, plus 10 cr. hrs. in courses numbered 200 or higher in specified allied disciplines; or baccalaureate degree.

**Marketing Dairy Products**

(See Agr. Ec. 526.)

(Offered in cooperation with the Department of Dairy Sc.)

**593 Individual Studies U 3 or 5**

(701) Su, A, W, Sp.

Prereq.: Permission of instructor.

Special assignments and elementary research; students elect problems after conference with the instructor in charge.

**GENERAL PREREQUISITES FOR COURSES  
NUMBERED 600**

Unless otherwise indicated, the prerequisites for 600 courses are 15 cr. hrs. in courses in the same discipline numbered 300 or higher, or 10 cr. hrs. in courses numbered 300 or higher in the same discipline, plus 10 cr. hrs. in courses numbered 300 or higher in specified allied disciplines.

**610 Physiology of Lactation U G 3**

A. 2 2-hr. cl.

Prereq.: Vet. Physiol. 211 and 20 cr. hrs. of Dairy Sc., Animal Sc. or vertebrate biology.

The physiological, endocrine, nutritional and environmental factors influencing the synthesis and ejection of milk. *Barr and Porter*.**612 Physiology of Reproduction U G 3  
and Growth**

Sp. 3 1-hr. lec.

Prereq.: Vet. Physiol. 211 and 20 cr. hrs. of Dairy Sc., Animal Sc., or vertebrate biology.

(Offered in cooperation with the Departments of Animal Sc. and Poultry Sc.)

Physiology of the reproductive system and of growth and development in farm animals; factors influencing reproductive performance. *Ludwick*.**613 Laboratory in Reproductive U G 3  
Physiology and Artificial  
Insemination**

(614) Sp. 2 2-hr. lab.

Prereq. or concur.: 612.

(Offered in cooperation with the Departments of Animal Sc. and Poul. Sc.)

Comparative anatomy and physiology of reproduction of farm animals; physiological bases for the use of artificial insemination in the research laboratory and in the field. *Ludwick*.**Nutrition and Feeding of Ruminant  
Animals**

(See Animal Sc. 631.)

(Offered in cooperation with the Department of Dairy Sc.)

**640 Evaluation and Integration U G 5  
of Research for Dairy  
Operations**

Sp. 5 cl.

Prereq.: 201, 340, 420, Animal Sc. 430, Agr. Ec. 410, 5 cr. hrs. Physiol.

The integration of scientific principles to maximize efficiency in dairy operations. *Brakel*.**GENERAL PREREQUISITES FOR COURSES  
NUMBERED 700**

Unless otherwise indicated, the prerequisites for 700 courses are 15 cr. hrs. in courses in the same discipline numbered 400 or higher, plus additional specified course(s) numbered 600 or higher.

**710 Advanced Reproductive U G 3 or 5  
Physiology**

(812) Sp. 2 2-hr. cl.

Prereq.: 612 and acceptable courses in Physiol., Anat., and Biochem.

(Offered in cooperation with the Departments of Animal Sc. and Poul. Sc.)

Recent advances in research in mammalian reproduction; optional individual research experience in reproductive problems with small and large mammals for additional credit. *Gomes and VanDemark*.**720 Genetics of Animal U G 5  
Populations**

W. 5 cl.

Prereq.: 420 or Biol. 630 and 10 cr. hrs. in Math.

(Offered in cooperation with the Departments of Animal Sc. and Poul. Sc.)

Theory and practice of analyzing and altering the genetic composition of animal populations. *Swiger*.



### GENERAL PREREQUISITES FOR COURSES NUMBERED 800 AND 900

Unless otherwise indicated, the prerequisites for 800 and 900 courses are 30 cr. hrs. in courses in the same discipline, or 20 cr. hrs. in the same discipline, plus 25 cr. hrs. in specified allied disciplines.

**800 Seminar G 1**  
(801) A, W, Sp. 1 cl.

**810 Current Topics in Animal Physiology G 3**

(840) A, W, Sp. 2 hr. cl.  
Prereq.: Acceptable courses in Physiol., Anat., and Biochem.  
Repeatable to a maximum of 12 cr. hrs.  
(Offered in cooperation with the Departments of Animal Sc. and Poul. Sc.)

**820 Current Topics in Animal Genetics G 3**

3 cl.  
Prereq.: Acceptable courses in animal genetics, math., and statistics.  
Repeatable to a minimum of 12 cr. hrs.  
(Offered in cooperation with the Departments of Animal Sc. and Poul. Sc.)

**820.01 Selection Index Theory**

Sp.

**820.02 Non-additive Genetic Variance**

**820.03 Polymorphic Systems**

**820.04 Simulation of Genetic Systems**

W.

**820.05 Cytogenetics of Animal Populations**

W.

**820.06 Physiological Indices in Animal Breeding**

A.

**820.07 Genetics of Threshold Characters**

Sp.

Fechheimer, Harvey, Jaap, and Swiger.

### Advanced Studies in Nutrition

(See Animal Sc. 830.)

(Offered in cooperation with the Departments of Dairy Sc. and Poul. Sc.)

**885 Research Principles and Methods G 5**  
(714) Sp. 3 cl., 1 4-hr. lab.

Prereq.: Biol. 850, 8 cr. hrs. in Math., and two qtrs. graduate study.

Survey and analysis of research in dairy and animal science, literature reviews, collection of data, preparation of bibliographies and presentation of reports. Gilmore and Van Demark.

**898 Interdepartmental Seminar in Nutrition and Food Technology G 1**

Sp.

(See under Interdepartmental Seminars.)

**993 Individual Studies G 3 or 5**  
(701) Su, A, W, Sp.

Exploratory research and advanced assignments; students elect problems after conference with the instructor in charge.

**999 Research G Arr.**  
(950) Su, A, W, Sp.

Research for thesis or dissertation purposes only.

## Dairy Technology

Office: 122 Vivian Hall, 2121 Fyffe Road

Professors Gould (Chairman), Harper, Kristoffersen, and Slatter; Associate Professors Mikolajcik and Vakaleris; Assistant Professors Blaisdell and Hansen; Instructors Kenyon and Lindamood.

### GENERAL PREREQUISITES FOR COURSES NUMBERED 200

Unless otherwise indicated, the prerequisites for 200 courses are 45 cr. hrs. in collegiate courses, exclusive of ROTC and Phys. Ed.; or specified course(s) numbered 100-199.

**201 Fundamentals of Industrial Dairying U 5**

(401) Sp. 3 cl., 2 2-hr. lab.

Scope, trends and practices of the dairy processing industry; role of industrial dairying in the agricultural complex; characteristics and utilization of milk and milk products. Lindamood.

**289 Dairy Industry Apprenticeship U 3**

(415) Su, A, W, Sp.

Graduation credit limited to students completing the Dairy Tech. curriculum. Ten weeks, practical experience or equiv. in an approved dairy processing plant. Written report required.

Kristoffersen.

### GENERAL PREREQUISITES FOR COURSES NUMBERED 300 AND 400

Unless otherwise indicated, the prerequisites for 300 and 400 courses are 90 cr. hrs. in collegiate courses, exclusive of ROTC and Phys. Ed.; or specified course(s) numbered 100-399.

**411 Sensory Evaluation and Selection of Dairy Foods U 3**

(520) Sp. 3 2-hr. labs.

Prereq.: 201 or equiv. in depts. offering degrees in Food Tech.

Fundamentals of sensory perception; evaluation of dairy foods; panel selection and training; analysis and market application of results; products standards and grades. Slatter.

**489 Field Studies of Industrial Problems U 3**

(515) Su, A, W, Sp.

Graduation credit limited to students completing the Dairy Tech. curriculum.

Ten weeks in plant study of industrial problems in approved dairy organizations; written report required. Kristoffersen.

**493 Individual Studies U 3-5**

(701) Su, A, W, Sp. 9-, 12-, or 15-hr. lab.

Prereq.: Junior standing.

Individual study course to permit undergraduate students to explore in depth selected areas of dairy technology.

GENERAL PREREQUISITES FOR COURSES  
NUMBERED 500

Unless otherwise indicated, the prerequisites for 500 courses are 15 cr. hrs. in courses in the same discipline numbered 200 or higher or 10 cr. hrs. in courses numbered 200 or higher in the same discipline, plus 10 cr. hrs. in courses numbered 200 or higher in specified allied disciplines; or baccalaureate degree.

**521 Dairy Products Standards and Analysis U G 3**

- (601) A. 3 cl.  
Prereq.: 14 cr. hrs. Chem.  
Not open for graduate credit to majors in Dairy Tech.

The modern dairy laboratory; chemical characterization and analysis of milk and milk products; selection, evaluation, and utilization of analytical methods; regulatory agencies and product standards. *Kristoffersen*.

**522 Dairy Products Standards and Analysis: Laboratory U G 3**

- (602) A. 1 cl., 2 3-hr. lab.  
Prereq. or concur.: 521.  
Not open for graduate credit to majors in Dairy Tech.

Application of modern analytical methods to dairy products; comparison and interpretation of results; laboratory project studies and technical report preparation. *Kristoffersen*.

GENERAL PREREQUISITES FOR COURSES  
NUMBERED 600

Unless otherwise indicated, the prerequisites for 600 courses are 15 cr. hrs. in courses in the same discipline numbered 300 or higher, or 10 cr. hrs. in courses numbered 300 or higher in the same discipline, plus 10 cr. hrs. in courses numbered 300 or higher in specified allied disciplines.

**623 Technical Control of Dairy Products U G 5**

- (710) Sp. 3 cl., 2 3-hr. labs.  
Prereq.: Senior or graduate standing.

Utilization of science and engineering in industrial technical control; application of advanced chemical, physical and microbiological techniques. *Harper*.

**631 Market Milk Industry U G 3**

- (603) W. 3 cl.  
Prereq.: Agr. E. 310.

Science, (engineering, and economic principles of unit operations in the fluid milk industry; product properties; quality control; public health aspects. *Harper*.

**632 Market Milk Industry: Laboratory U G 3**

- (604) W. 1 cl., 2 3-hr. labs.  
Prereq.: 631, Agr. E. 310.

Application of unit processes in the fluid milk industry; equipment use and production planning; processing and production control; special products. *Harper*.

**634 Butter and Cheese Industries U G 5**

- (626) Sp. 3 cl., 2 3-hr. labs.  
(627) Prereq.: 631 and 632.

Chemical, physical, and microbiological phenomena as related to butter, cheese, and similar products; application of engineering and business principles. *Kristoffersen*.

**636 Concentrated and Frozen Dairy Products Industries U G 5**

- (609) A. 3 cl., 2 3-hr. labs.  
(610) Prereq.: Agr. E. 411.

Unit operations in concentration and freezing; application and interpretation of principles of science, engineering, and management to the concentrated milk and frozen dairy desserts industries. *Vakaleris*.

**693 Individual Studies U G 3-5**

- (701) Su, A, W, Sp. 9-, 12-, or 15-hr. lab.  
Prereq.: Dairy Tech. 4th yr. standing and permission of instructor.  
Repeatable to a maximum of 10 cr. hrs.

Individual project studies of current problems; planning, conducting, and reporting research.

**695 Seminar U G 3**

- (651) A. 3 cl.  
Prereq.: Dairy Tech. 4th yr. standing.  
Not open for graduate credit to majors in Dairy Tech.

Leading research workers and their contributions; review, interpretation, and significance of current research; preparation and oral presentation of technical papers. *Gould and Harper*.

GENERAL PREREQUISITES FOR COURSES  
NUMBERED 700

Unless otherwise indicated, the prerequisites for 700 courses are 15 cr. hrs. in courses in the same discipline numbered 400 or higher, plus additional specified course(s) numbered 600 or higher.

**745 Management of Dairy Operations U G 5**

- (605) W. 2 3-hr. cl.  
Prereq.: 4th yr. standing.

Organized management structure; practices and trends in dairy operations; efficiency guidelines; product, materials, and utilities conservation; personnel evaluation and utilization; analysis of current industry problems. *Gould*.

GENERAL PREREQUISITES FOR COURSES  
NUMBERED 800 AND 900

Unless otherwise indicated, the prerequisites for 800 and 900 courses are 30 cr. hrs. in courses in the same discipline, or 20 cr. hrs. in the same discipline, plus 25 cr. hrs. in specified allied disciplines.

**850 Seminar G 1**

- (800) A, W, Sp. 1 cl.

Graduate student-staff participation in a study of teaching and research trends and opportunities; critical analysis of research approaches, findings, and publications.

**885 Research Methods G 3-5**

- (810) Su, A, W, Sp. 9-, 12-, or 15-hr. lab.  
Prereq.: 623.

Repeatable to a maximum of 15 cr. hrs.

Principles, application and interpretation of selected research methods for the investigation of physical, chemical, biological and/or engineering phenomena in dairy products and processes.

**898 Interdepartmental Seminar in Nutrition and Food Technology G 1**

- Sp.  
(See under Interdepartmental Seminars.)



**998 Research in Dairy Technology: G Arr. Thesis**(950) *Su, A, W, Sp.*

Research for thesis purposes only.

**999 Research in Dairy Technology: G Arr. Dissertation**(950) *Su, A, W, Sp.*

Research for dissertation purposes only.

**Dance**

Office: 219 Pomerene Hall, 1760 Neil Avenue

Professor Alkire (Coordinator); Associate Professor Blaine; Assistant Professors Payton and Wynne; Instructors Kvasnicka, Patton, and Rawlins.

**111 Techniques and Materials of Dance U 3**(411) *A. 5 2-hr. lab.**Prereq.: Permission of chairman.**Required of majors in Dance.**Repeatable without credit.*

Basic techniques and elementary composition.

**112 Techniques and Materials of Dance U 3**(412) *W. 5 2-hr. lab.**See requirements for 111.*

Continuation of 111.

**113 Techniques and Materials of Dance U 3**(413) *Sp. 5 2-hr. lab.**See requirements for 111.*

Continuation of 112.

**138 Dance in the Twentieth Century U 3***Sp. 3 cl.**Not open to students with credit for 659.*

Dance as a performing art in Europe and America; a survey of major stylistic trends, principal artists and their works.

**190 Ethnic Dance Forms U 3***Sp. 2 1-hr. lec., 4 1-hr. lab.**Prereq.: 112.*

Folk forms as practiced by ethnic groups in selected cultures.

**199 The University Dance Group U 1**(424) *A, W, Sp. 1 cl., scheduled rehearsals.**Prereq.: Admission by audition only.**Repeatable to a maximum of 12 cr. hrs.*

The University Dance Group is a concert organization, dedicated to the study and performance of experimental and repertory dance works; three or more performances a year.

**214 Techniques and Beginning Composition U 3**(414) *A. 5 2-hr. lab.**Required of majors in Dance.**Repeatable without credit.*

Continuation of 113.

**215 Techniques and Beginning Composition U 3**(415) *W. 5 2-hr. lab.**See requirements for 214.*

Continuation of 214.

**216 Techniques and Beginning Composition U 3**(416) *Sp. 5 2-hr. lab.**See requirements for 214.*

Continuation of 215.

**248 Reconstruction, Analysis, and Teaching of Folk Dance Forms U 3**(548) *Sp. 1 cl., 2 2-hr. lab.**Prereq.: Two qtrs. of modern dance or equiv.*

Movement techniques and styles inherent in folk dance forms with application to teaching.

**438 Dance Notation I U 3**(538) *A. 2 cl., 2 1-hr. lab.**Prereq.: 111 or permission of instructor.*

Fundamentals and principles of Labanotation.

**439 Dance Notation II U 3**(539) *W. 2 cl., 2 1-hr. lab.**Prereq.: 438 or permission of instructor.*

Continuation of 438 with emphasis on reading and writing scores.

**531 Theory and Practice of Modern Dance U G 3**(631) *Sp. 2 cl., 3 lab. hrs.**Prereq.: Permission of instructor.*Foundations for teaching and organizing instructional and extra curricular programs of modern dance in schools and colleges; laboratory problems, lectures, readings, and discussions. *Alkire.***532 Dance Composition U G 3**(632) *A. 2 1-hr. cl., 4 lab. hrs.**Prereq.: Permission of instructor.*A study of composition based on elements of modern dance backgrounds and immediate sources of modern art; laboratory problems with criticism, readings, films, and slides. *Rawlins.***533 Dance Production U 5**(633) *W. 2 1-hr. cl., 10 lab. hrs.**Prereq.: Permission of instructor.*

A study of the production problems in staging dance for the theater; lectures, readings, and discussions.

**534 Dance Repertory Literature I U G 3**

A. 5 1-hr. lec., 5 1-hr. lab.

Prereq.: 439 or equiv.

The reconstruction of a major dance work scored in Labanotation and choreographed for large groups. *Payton*.

**535 Dance Repertory Literature II U G 3**

W. 5 1-hr. lec., 5 1-hr. lab.

Prereq.: 439 and permission of instructor.

Performing and writing passages of a dance work choreographed by an Artist-Dancer in residence, and preparation of the notations in score form. *Payton*.

**536 Dance Repertory Literature III U G 3**

Sp. 5 1-hr. lec., 5 1-hr. lab.

Prereq.: 537 or permission of instructor.

Directing small-scale dance works scored in Labanotation and producing works for performance. *Payton*.

**537 Music for Choreography U G 3**

A. 3 1-hr. lec., 1 2-hr. lab.

Prereq.: 531 or equiv.

Study of music suitable for choreographic purposes and the various approaches to the use of music in dance composition. *Payton*.

**650 Advanced Dance Composition U G 4**

A, Sp. 2 2-hr. cl., 1 2-hr. lab.

Prereq.: 439, 532 or equiv.

Choreographic problems of groups: duets, trios, quartets, quintets; analysis of dance works of recognized artists through films and dance scores written in Labanotation. *Blaine*.

**657 History of Dance I U G 3**

A. 3 cl.

A survey of basic dance forms and their functions in tribal societies, and the ancient civilizations of Egypt, Greece and Rome. *Wynne*.

**658 History of Dance II U G 3**

W. 3 cl.

Survey of dance from the early Christian church through the Baroque period. *Wynne*.

**659 History of Dance III U G 3**

Sp. 3 cl.

Development of Western dance in the nineteenth and twentieth centuries with emphasis on ballet and modern dance. *Wynne*.

**693 Individual Studies in Dance U G 1-4 Education**

(701) A, W, Sp.

Prereq.: Graduate or senior standing and permission of adviser.

Investigation of selected professional problems. *Alkire*.

**994 Problems in Dance Education G 3**

(820G) A, W, Sp.

Advanced problems in dance education, individual or group participation. *Alkire*.

**Dental Hygiene**

Office: 333 Dentistry Building, 305 West 12th Avenue

Professors J. R. Wilson (Dean), Wise (Chairman and Director), App, Boucher, Dew, Heintz, McConnell, Mordy, Newton, Permar, Pettit, W. Postle, Sletto, Wharton, Wherry, Williams, and Woelfel; Associate Professors Beckwith, Bruce, Conroy, Huffman, Long, Marshall, H. Postle, Trippy, and Walton; Assistant Professors Blozis, Catherman, Cavalaris, Harper, Hoppenstand, Hull, Murphy, Pappas, Reynolds, and B. Snyder; Instructors Allen, Herr, Hockman, Hogg, Kumler, Mote, Nordstrom, Rosenbusch, Schneider, Selsby, Wallace, Weisenstein, and Whitacre; Research Associate Foreman.

**201 Dental Anatomy U 3**

(401) A. 1 cl., 6 lab. hrs.

Prereq.: Dent. Hyg. 1st yr. standing.

The morphology of human teeth and surrounding structures. *Permar*.

**203 Dental Anatomy U 2**

(402) W. 1 cl., 3 lab. hrs.

Prereq.: Dent. Hyg. 1st yr. standing.

A continuation of 201. The physiology of human teeth and surrounding structures. *Permar*.

**223 Dental Prophylaxis U 5**

(403) Sp. 2 cl., 7 lab. hrs.

Prereq.: Dent. Hyg. 1st yr. standing.

The demonstration of and the application of technical procedures for the removal of hard and soft deposits from the surfaces of the teeth. *Reynolds and Wise*.

**233 Oral Histology and Embryology U 1**

(506) W. 1 cl.

Prereq.: Dent. Hyg. 1st yr. standing.

A study of the microscopic anatomy of the teeth and surrounding structures; the development of the teeth, oral cavity, and face. *Permar*.

**243 General Pathology U 2**

(501) Sp. 2 cl.

Prereq.: Dent. Hyg. 1st yr. standing.

An introduction to general pathology including degenerative changes, inflammation, and repair; a discussion of the more common diseases affecting the human body. *Cavalaris*.

**283 Oral Hygiene U 1**

(404) Sp. 1 cl.

Prereq.: Dent. Hyg. 1st yr. standing.

A study of the formation of deposits on teeth, the maintenance of good oral hygiene, and the prevention of periodontal disease. *App*.

**295 Survey of Dental Hygiene U 1**

A. 1 cl.

Prereq.: Dent. Hyg. 1st yr. standing.

The historical, professional, legal, ethical and preventive aspects of Dental Hygiene. *Wise*.

**301 Anesthesia U 1**

(515) A. 1 cl. or 3 lab. hrs.

Prereq.: Dent. Hyg. 2nd yr. standing.



The role of the Dental Hygienist as an assistant in Anesthesia; premedication; physiological responses to and pharmacological actions of anesthetic agents; emergency treatment. *Snyder.*

**311 Dental Nursing U 2**  
(502) A. 2 cl.

*Prereq.: Dent. Hyg. 2nd yr. standing.*

A discussion of ways in which the dental hygienist may assist the general practitioner of Dentistry or one specializing in any field of Dentistry. *Wise.*

**312 Dental Nursing U 2**  
(503) W. 2 cl.

*Prereq.: Dent. Hyg. 2nd yr. standing.*

Problems which students encounter in the dental hygiene clinic; practical experience in dental assisting. *Wise.*

**313 Dental Nursing U 1**  
(504) Sp. 1 cl.

*Prereq.: Dent. Hyg. 2nd yr. standing.*

A continuation of 312. The Dental Hygienist's responsibilities to her profession. *Wise.*

**321 Clinical Dental Prophylaxis U 3**  
(508) A. 9 clinic hrs.

*Prereq.: Dent. Hyg. 2nd yr. standing.*

Clinical application of principles taught in 223. *Wise.*

**322 Clinical Dental Prophylaxis U 5**  
(509) W. 15 clinic hrs.

*Prereq.: Dent. Hyg. 2nd yr. standing.*

A continuation of 321. *Wise.*

**323 Clinical Dental Prophylaxis U 5**  
(510) Sp. 15 clinic hrs.

*Prereq.: Dent. Hyg. 2nd yr. standing.*

A continuation of 322. *Wise.*

**331 Materia Medica U 1**  
(405) A. 1 cl.

*Prereq.: Dent. Hyg. 2nd yr. standing.*

A study of drugs commonly used in dental practice and correct methods for their use. *Reynolds.*

**335 Chemistry for Dental Hygienists U 5**  
W. 5 cl.

*Prereq.: Dent. Hyg. 2nd yr. standing.*

A survey of general chemical principles and an introduction to fundamental physiological applications of organic chemistry for dental hygiene students. *Foreman.*

**341 Oral Pathology U 1**  
(507) A. 1 cl.

*Prereq.: Dent. Hyg. 2nd yr. standing.*

A study of the clinical manifestations of the common diseases affecting the teeth and their supporting structures. *Bruce.*

**351 Nursing Techniques for Dental Hygienists U 2**  
(511) A. 2 cl.

*Prereq.: Dent. Hyg. 2nd yr. standing.*

A study of the principles of nursing as they apply to the Dental Hygienist. *Newton.*

**361 Oral Radiography U 2**  
(512) A. 2 cl., or 6 lab. hrs.

*Prereq.: Dent. Hyg. 2nd yr. standing.*

The theory and technical procedures of oral radiography. *Pappas.*

**372 Dental Materials U 3**  
(505) W. 1 cl., 6 lab. hrs.

*Prereq.: Dent. Hyg. 2nd yr. standing.*

A study of the composition, chemical and physical properties, manipulation and uses of various materials employed in the practice of Dentistry. *Woelfel.*

**382 Oral Hygiene in the Schools U 2**  
(513) W. 2 cl.

*Prereq.: Dent. Hyg. 2nd yr. standing.*

The principles involved in effective Dental Health Education of the general public, especially school children. *Catherman.*

**383 Oral Hygiene in the Schools U 2**  
(514) Sp. 2 cl.

*Prereq.: Dent. Hyg. 2nd yr. standing.*

A continuation of 382. An application of principles learned in (382) by actual teaching experiences and by visits to the schools; the history and organization of dental public health. *Catherman.*

**393 Office Practices and Economics U 2**  
(516) Sp. 2 cl.

*Prereq.: Dent. Hyg. 2nd yr. standing.*

The role of the Dental Hygienist in dental practice and the economics involved. *Weisenstein.*

## Dentistry

Office: 120 Dentistry Building, 305 West 12th Avenue

Professors J. R. Wilson (Dean), Allison, App, Boucher, Dew, Heintz, Kolas, Kreider, McConnell, Permar, Pettit, Williams, Wise, and Woelfel Associate Professors Beckwith, Bruce, Conroy, Long, Marshall, Melfi, O'Brien, Postle, Rosen, Russell, Spangenberg, Taylor, Trippy, Wade, W. Walton, Winter, and Zackerl; Assistant Professors Ashelman, Bazler, Blozis, Bluff, Boucher, Carnes, Catherman, Cavalaris, Chandler, Chapman, Clendenen, Crump, Cummins, Dageforde, Deeds, Dierksen, Dilley, Gump, Hall, Hiatt, Huffman, Hull, Imhoff, Jefferis, Johannes, Knouse, Larrimer, Luckhart, Maddox, McCoy, Moore, Murphy, Pappas, Parrish, Reynolds, Rosenblum, Rule, Rumbaugh, Ryan, Skinner, B. Snyder, Solt, F. Starr, J. Starr, Tootle and C. Walton.

**301 Dental Anatomy P 2**  
A. 1 cl., 8 lab. hrs.

*Prereq.: Dent. 1st yr. standing.*

The morphology of human teeth and surrounding structures. *Trippy.*

**302 Dental Anatomy P 4**  
W. 1 cl., 8 lab. hrs.

*Prereq.: Dent. 1st yr. standing.*

The physiology of human teeth and surrounding structures. *Trippy.*

- 303 Principles of Occlusion** P 2  
*Sp. 1 cl., 3 lab. hrs.*  
*Prereq.: Dent. 1st yr. standing.*  
 The anatomy, physiology, actions and functions of the human masticatory apparatus.
- 305 Dental Materials** P 1  
*W. 1 cl.*  
*Prereq.: Dent. 1st yr. standing.*  
 A review of physical properties of materials; a study of dental impression materials, cast materials, and denture base resins. *Woelfel and Dew.*
- 306 Dental Materials** P 1  
*Sp. 1 cl.*  
*Prereq.: Dent. 1st yr. standing.*  
 Materials used in the restoration of carious teeth, including dental cements, waxes, plastics, amalgams, gold foil, and casting gold alloys. *Chandler.*
- 320 Orientation and History of Dentistry** P 1  
*A. 1 cl.*  
*Prereq.: Dent. 1st yr. standing.*  
 The evaluation of dentistry from the ancient period through the medieval, colonial, early American and modern periods. *Wilson and Harper.*
- 381 Complete Prosthodontics** P 4  
*A. 1 cl., 6 lab. hrs.*  
*Prereq.: Dent. 1st yr. standing.*  
 The elemental principles of impressions and jaw relations and procedures used in the construction of complete dentures. *Boucher.*
- 382 Complete Prosthodontics** P 4  
*W. 1 cl., 8 lab. hrs.*  
*Prereq.: Dent. 1st yr. standing.*  
 The principles and practices of arranging artificial teeth and processing and finishing complete dentures. *Kreider.*
- 386 Fixed Partial Prosthodontics** P 1  
*Sp. 1 cl.*  
*Prereq.: Dent. 1st yr. standing.*  
 Aims of service; terminology and definitions; correlation with other curriculum areas; indications, contra-indications, and factors relating to bridge construction; description of technic laboratory procedures. *Cummins.*
- 389 Removable Partial Prosthodontics** P 5  
*Sp. 1 cl., 8 lab. hrs.*  
*Prereq.: Dent. 1st yr. standing.*  
 An introduction to the principles of design and construction of removable partial dentures. *Heintz.*
- 403 Local Anesthesia** P 1  
*Sp. 1 cl.*  
*Prereq.: Dent. 2nd yr. standing.*  
 The theory, chemistry and technique of local anesthesia for dental procedures. *Hiatt.*
- 404 Dental Materials** P 1  
*A. 1 cl.*  
*Prereq.: Dent. 2nd yr. standing.*  
 A study of dental casting procedures and associated materials, dental gold alloy and base metal wires, chrome-cobalt and steel alloys, heat treatment of metals, welding and soldering procedures, and abrasives and polishing agents. *Chandler.*
- 413 Endodontics** P 1  
*Sp. 1 cl.*  
*Prereq.: Dent. 2nd yr. standing.*  
 Basic techniques and procedures used in the treatment of pulpless teeth. *Bazler and Chapman.*
- 431 Operative Dentistry** P 2  
*A. 1 cl., 3 lab. hrs.*  
*Prereq.: Dent. 2nd yr. standing.*  
 An introduction to the principles of Operative Dentistry; the theory and technique for simple cavity preparations. *H. Postle and Huffman.*
- 432 Operative Dentistry** P 3  
*W. 1 cl., 6 lab. hrs.*  
*Prereq.: Dent. 2nd yr. standing.*  
 The theory and technical procedures for the preparation of compound and complex cavities and the use of amalgams and silicate as restorative materials. *H. Postle and Huffman.*
- 433 Operative Dentistry** P 3  
*Sp. 1 cl., 6 lab. hrs.*  
*Prereq.: Dent. 2nd yr. standing.*  
 The theory and technical procedures for the use of gold inlays and gold as restorative materials; preparation for the clinical aspects of Operative Dentistry. *H. Postle and Huffman.*
- 452 Pedodontics** P 3  
*W. 2 cl., 2 lab. hrs.*  
*Prereq.: Dent. 2nd yr. standing.*  
 Orientation in pedodontics preparatory for clinical assignments; patient management, modified operative procedures in cavity preparation, pulp management, the manipulation of prefabricated materials, and methods of prevention and control of dental caries. *Hall and Pettit.*
- 453 Pedodontics and Interceptive Orthodontics** P 2  
*Sp. 1 cl., 3 lab. hrs.*  
*Prereq.: Dent. 2nd yr. standing.*  
 Preparation of study casts; construction of orthodontic bands, using different materials and techniques; designing appliances for prevention, interception, or correction of incipient malocclusion. *Pettit, Hall, and Williams.*
- 462 Periodontics** P 1  
*W. 1 cl.*  
*Prereq.: Dent. 2nd yr. standing.*  
 The etiology, pathology, and diagnosis of periodontal disease. *App.*
- 463 Periodontics** P 1  
*Sp. 1 cl.*  
*Prereq.: Dent. 2nd yr. standing.*  
 Fundamental methods of prevention and treatment of periodontal disease. *App.*
- 482 Complete Prosthodontics** P 2  
*W. 1 cl., 3 lab. hrs.*  
*Prereq.: Dent. 2nd yr. standing.*  
 The principles and practices of the construction of immediate dentures, and of making esthetic denture restorations. *Larimer.*



- 483 Complete Prosthodontics P 3**  
*Sp. 1 cl., 6 lab. hrs.*  
*Prereq.: Dent. 2nd yr. standing.*  
 The principles and practices of impression making as related to the anatomic, histologic and physiologic considerations. *Boucher.*
- 484 Fixed Partial Prosthodontics P 2**  
*A. 1 cl., 3 lab. hrs.*  
*Prereq.: Dent. 2nd yr. standing.*  
 Principles and technical procedures; complete and partial crowns: preparation, fabrication, and casting in gold. *Crump and Long.*
- 485 Fixed Partial Prosthodontics P 3**  
*W. 1 cl., 6 lab. hrs.*  
*Prereq.: Dent. 2nd yr. standing.*  
 Construction of fixed partial restorations utilizing basic types of retainers, fixed and semi-movable connectors, gold and acrylic pontics. *Crump and Long.*
- 486 Fixed Partial Prosthodontics P 3**  
*Sp. 1 cl., 6 lab. hrs.*  
*Prereq.: Dent. 2nd yr. standing.*  
 Construction of fixed partial restoration with basic retainers and connectors and glazed porcelain pontic; fabrication of acrylic jacket crown. *Crump and Long.*
- 487 Removable Partial Prosthodontics P 3**  
*A. 1 cl., 6 lab. hrs.*  
*Prereq.: Dent. 2nd yr. standing.*  
 The relation of the diagnostic aspects of removable partial dentures to their design and construction. *Heintz.*
- 489 Removable Partial Prosthodontics P 1**  
*Sp. 1 cl.*  
*Prereq.: Dent. 2nd yr. standing.*  
 The advanced principles and design of removable partial dentures and their clinical applications. *Heintz.*
- 501 Local Anesthesia and Oral Surgery P 1**  
*A. 1 cl.*  
*Prereq.: Dent. 3rd yr. standing.*  
 The chemistry and pharmacology of local anesthesia and an introduction to the basic principles of oral surgery. *Hiatt and Snyder.*
- 502 Oral Surgery P 1**  
*W. 1 cl.*  
*Prereq.: Dent. 3rd yr. standing.*  
 Theory and technique of basic exodontia and minor oral surgery; post-operative complications and treatment. *Hiatt and Snyder.*
- 511 Endodontics P 1**  
*A. 1 cl.*  
*Prereq.: Dent. 3rd yr. standing.*  
 Clinical applications of the principles and technical procedures in endodontics. *Marshall.*
- 512 Clinical Endodontics P 1**  
*W. 2 clinic hrs.*  
*Prereq.: Dent. 3rd yr. standing.*  
*Marshall.*
- 513 Clinical Endodontics P 1**  
*Sp. 2 clinic hrs.*  
*Prereq.: Dent. 3rd yr. standing.*  
 Continuation of 512. *Marshall.*
- 531 Operative Dentistry P 4**  
*A. 1 cl., 6 clinic hrs.*  
*Prereq.: Dent. 3rd yr. standing.*  
 Clinical diagnosis of pulp disease; protection and conservative treatment of the vital pulp; factors influencing the success or failure of restorative materials in clinical practice. *Beckwith.*
- 532 Operative Dentistry P 4**  
*W. 1 cl., 6 clinic hrs.*  
*Prereq.: Dent. 3rd yr. standing.*  
 Detailed study of restorative materials; indications and contraindications for each; their manipulation and individual requirements in cavity preparation. *Beckwith.*
- 533 Operative Dentistry P 4**  
*Sp. 1 cl., 6 clinic hrs.*  
*Prereq.: Dent. 3rd yr. standing.*  
 Clinical application of the theories and techniques of restoring carious and defective teeth. *Beckwith.*
- 540 Oral Histology and Embryology P G 4**  
*A. 2 cl., 6 lab. hrs.*  
*Prereq.: Anat. 640; Dent. 2nd yr. standing.*  
 Embryology and histology of teeth and surrounding structures and their correlation to the practice of dentistry. *Melfi.*
- 541 Oral Pathology P G 4**  
*A. 3 cl., 3 lab. hrs.*  
*Prereq.: Dent. 3rd yr. standing, 540 and Path. 655.*  
 The histopathologic and clinical study of oral disease processes that are chiefly of local origin. *Kolas.*
- 542 Oral Pathology P G 1**  
*W. 1 cl.*  
*Prereq.: Dent. 3rd yr. standing.*  
 The histopathologic and clinical study of oral disease processes that are associated with systemic disease or diseases of specific organ systems. *Kolas.*
- 545 Oral Diagnosis and Treatment P 1**  
**Planning**  
*W. 1 cl.*  
*Prereq.: Dent. 3rd yr. standing.*  
 The principles and methods of oral diagnosis, with emphasis on the medical and dental history of the patient. *Blozis and Bruce.*
- 546 Oral Diagnosis and Treatment P 1**  
**Planning**  
*Sp. 1 cl.*  
*Prereq.: Dent. 3rd yr. standing.*  
 The interpretation of signs and symptoms, medical laboratory tests, and treatment planning for the patient. *Blozis and Bruce.*

- 547 Oral Radiography** P 1  
A. 1 cl.  
Prereq.: Dent. 3rd yr. standing.  
The theory and operation of radiographic equipment; darkroom procedures; discussion of anatomical landmarks as seen radiographically; introduction of intraoral radiographic technics. *O'Brien.*
- 548 Oral Radiography** P 1  
W. 1 cl.  
Prereq.: Dent. 3rd yr. standing.  
Bisection of the angle and long cone technics used in intraoral radiography; extraoral radiographic technics. *O'Brien.*
- 549 Oral Radiography** P 1  
Sp. 1 cl.  
Prereq.: Dent. 3rd yr. standing.  
Interpretation of radiographic evidence of pathosis; hazards of ionizing radiation. *O'Brien.*
- 551 Pedodontics** P 1  
A. 1 cl.  
Prereq.: Dent. 3rd yr. standing.  
Detailed study of materials presented in 452; restorative materials used in pedodontics; the use of X ray in pedodontic practice. *Pettit.*
- 552 Clinical Pedodontics** P 1  
W. 2 clinic hrs.  
Prereq.: Dent. 3rd yr. standing.  
*Pettit.*
- 553 Clinical Pedodontics** P 1  
Sp. 2 clinic hrs.  
Prereq.: Dent. 3rd yr. standing.  
Continuation of 552. *Pettit.*
- 555 Orthodontics** P 1  
W. 1 cl.  
Prereq.: Dent. 3rd yr. standing.  
The etiology and classification of malocclusion, physiology of tooth movement, character of tissues involved. *Williams.*
- 556 Orthodontics** P 2  
Sp. 2 cl.  
Prereq.: Dent. 3rd yr. standing.  
Methods and appliances for the correction of malposed teeth. *Williams.*
- 560 Periodontics** P 1  
A. 1 cl.  
Prereq.: Dent. 3rd yr. standing.  
Clinical procedures used in the treatment of periodonal disease. *App.*
- 561 Clinical Periodontics** P 1  
A. 3 clinic hrs.  
Prereq.: Dent. 3rd yr. standing.  
*App.*
- 562 Clinical Periodontics** P 1  
W. 3 clinic hrs.  
Prereq.: Dent. 3rd yr. standing.  
Continuation of 561. *App.*
- 563 Clinical Periodontics** P 1  
Sp. 3 clinic hrs.  
Prereq.: Dent. 3rd yr. standing.  
Continuation of 562. *App.*
- 572 Pharmacology** P 1  
W. 1 cl.  
Prereq.: Dent. 3rd yr. standing.  
General pharmacology including the origin and methods of development of drugs; basic pharmacy involving prescription writing, the metric and apothecary systems, drug standards and federal drug legislation and regulation. *Hiatt.*
- 573 Pharmacology** P 1  
Sp. 1 cl.  
Prereq.: Dent. 3rd yr. standing.  
The pharmacology of drugs with possible applications to dentistry, including premedications, postmedications, and drugs affecting the autonomic nervous system. *Hiatt.*
- 581 Complete Prosthodontics** P 2  
A. 1 cl., 2 clinic hrs.  
Prereq.: Dent. 3rd yr. standing.  
The principles and practices of maxillomandibular relation records, articulating instruments and occlusion. *Boucher.*
- 582 Complete Prosthodontics** P 3  
W. 1 cl., 4 clinic hrs.  
Prereq.: Dent. 3rd yr. standing.  
The principles and clinical practice in the restoration of esthetics and facial expression by artificial dentures. *Boucher.*
- 583 Complete Prosthodontics** P 3  
Sp. 1 cl., 4 clinic hrs.  
Prereq.: Dent. 3rd yr. standing.  
The clinical practice of the complete denture service including the care of patients after dentures have been inserted. *Boucher.*
- 584 Fixed Partial Prosthodontics** P 1  
A. 1 cl.  
Prereq.: Dent. 3rd yr. standing.  
Veneer crowns, dowel and core, temporary coverage; diagnosis and treatment planning; electroplating; clinical applications and practice. *Long.*
- 585 Fixed Partial Prosthodontics** P 2  
W. 1 cl., 3 clinic hrs.  
Prereq.: Dent. 3rd yr. standing.  
Elastic impression materials and related technics including use of gypsum products, waxes, tissue retraction, and sectioning methods; clinical applications and practice. *Long.*
- 586 Fixed Partial Prosthodontics** P 3  
Sp. 1 cl., 6 clinic hrs.  
Prereq.: Dent. 3rd yr. standing.  
Selection of abutments and retainers, connectors and pontics; additional types of bridgework procedures; clinical applications and practice. *Long.*
- 587 Removable Partial Prosthodontics** P 1  
A. 1 cl.  
Prereq.: Dent. 3rd yr. standing.  
Complex problems of removable partial dentures and their clinical application. *Heintz.*



- 593 Individual Studies** P 1-6  
*Su, A, W, Sp.*  
 Individual studies in any of the recognized fields of Dentistry or Summer Clinic.
- 601 Physical Diagnosis** P 2  
*A. 1 cl., 2 clinic hrs.*  
*Prereq.: Dent. 4th yr. standing.*  
 History taking; physical evaluation techniques; common laboratory analyses; nose, throat, and mouth examinations; Physiology of normal and pathologic respiration, heart functions and circulation of blood. *Allison and Wallace.*
- 602 Physical Diagnosis and Anesthesia** P 2  
*W. 1 cl., 2 clinic hrs.*  
*Prereq.: Dent. 4th yr. standing.*  
 Oxygen and carbon dioxide transport; electrolyte and fluid balance; pharmacologic action of sedatives, hypnotics, analgesics, narcotics, intravenous barbiturates, muscle relaxants, inhalation anesthetic agents. *Allison and Wallace.*
- 603 Anesthesia** P 2  
*Sp. 1 cl., 2 clinic hrs.*  
*Prereq.: Dent. 4 yr. standing.*  
 Laryngoscopy, endotracheal intubation, maintenance of anesthesia and management during recovery; management of emergencies; use of fluids, drugs, open and closed cardiac massage techniques, and analeptics. *Allison and Wallace.*
- 604 Oral Surgery** P 2  
*A. 1 cl., 2 clinic hrs.*  
*Prereq.: 4th yr. standing.*  
 Wound healing, inflammation, infection, their mechanism, diagnosis and treatment. Surgical management of exostosis, hyperplasias, and surgical preparation of the mouth for prosthodontics. *Allison and Wallace.*
- 605 Oral Surgery** P 2  
*W. 1 cl., 2 clinic hrs.*  
*Prereq.: Dent. 4th yr. standing.*  
 Diagnosis and surgical treatment plan for unerupted teeth; incisions, methods for removal of bone, protection for adjacent teeth, hemostatic agents, antibiotics, sutures and suturing. *Allison and Wallace.*
- 606 Oral Surgery** P 2  
*Sp. 1 cl., 2 clinic hrs.*  
*Prereq.: Dent. 4th yr. standing.*  
 Continuation of 605. Diagnosis, surgical treatment, and prognosis for pathologic conditions of the mouth and jaws, of the salivary glands and their ducts, and biopsy for lesions. *Allison, Wallace, Ford, Russell, and Snyder.*
- 612 Clinical Endodontics** P 2  
*W. 4 clinic hrs.*  
*Prereq.: Dent. 4th yr. standing.*  
*Marshall.*
- 613 Clinical Endodontics** P 1  
*Sp. 2 clinic hrs.*  
*Prereq.: Dent. 4th yr. standing.*  
 Continuation of 612. *Marshall.*
- 621 Dental Practice Administration** P 1  
*A. 1 cl.*  
*Prereq.: Dent. 4th yr. standing.*  
 Dental jurisprudence; ethics and legal aspects of the practice of dentistry. *Trippy, Harper, W. Postle, and Wilson.*
- 622 Dental Practice Administration** P 1  
*W. 1 cl.*  
*Prereq.: Dent. 4th yr. standing.*  
 Dental economics, records, tax liability. *Trippy, Harper, W. Postle, and Wilson.*
- 623 Dental Practice Administration** P 1  
*Sp. 1 cl.*  
*Prereq.: Dent. 4th yr. standing.*  
 The social aspects of the practice of dentistry. *Trippy, Harper, W. Postle, and Wilson.*
- 631 Operative Dentistry** P 5  
*A. 1 cl., 8 clinic hrs.*  
*Prereq.: Dent. 4th yr. standing.*  
 Review of the basic principles of operative dentistry and their clinical application to special problems. *Taylor.*
- 632 Operative Dentistry** P 5  
*W. 1 cl., 8 clinic hrs.*  
*Prereq.: Dent. 4th yr. standing.*  
 Introduction of special technical procedures in Operative Dentistry and their clinical applications. *Taylor.*
- 633 Operative Dentistry** P 5  
*Sp. 1 cl., 8 clinic hrs.*  
*Prereq.: Dent. 4th yr. standing.*  
 Continuation of 632. Advanced theories, technical procedures, and materials in Operative Dentistry; their value, limitations, and clinical application. *Taylor.*
- 641 Advanced Oncology** P G 1  
*A. 1 cl.*  
*Prereq.: Dent. 4th yr. standing.*  
 Dental aspects of oncology including the oral surgical, periodontic and prosthodontic management of patients with oral neoplastic disease and post-treatment morbidity. *Kolas.*
- 642 Advanced Oncology** P G 1  
*W. 1 cl.*  
*Prereq.: Dent. 4th yr. standing.*  
 Medical aspects of oncology including the diagnosis, treatment and prognosis of cancerous problems and discussion of recent advances in cancer research and etiology. *Kolas.*
- 643 Advanced Oncology** P G 1  
*Sp. 1 cl.*  
*Prereq.: Dent. 4th yr. standing.*  
 Clinico-pathologic conference pertaining chiefly to neoplastic disease, particularly in the head and neck regions. *Kolas.*
- 645 Clinical Oral Diagnosis and Treatment Planning** P 1  
*W. 2 clinic hrs.*  
*Prereq.: Dent. 4th yr. standing.*  
*Blozis and Bruce.*

- 646 Clinical Oral Diagnosis and Treatment Planning** P 1  
*Sp. 2 clinic hrs.*  
*Prereq.: Dent. 4th yr. standing.*  
 Continuation of 645. Blozis and Bruce.
- 647 Clinical Oral Radiography** P 1  
*A. 2 clinic hrs.*  
*Prereq.: Dent. 4th yr. standing.*  
 O'Brien.
- 648 Clinical Oral Radiography** P 1  
*W. 2 clinic hrs.*  
*Prereq.: Dent. 4th yr. standing.*  
 Continuation of 647. O'Brien.
- 649 Clinical Oral Radiography** P 1  
*Sp. 2 clinic hrs.*  
*Prereq.: Dent. 4th yr. standing.*  
 Continuation of 648. O'Brien.
- 651 Pedodontics** P 2  
*A. 1 cl., 3 clinic hrs.*  
*Prereq.: Dent. 4th yr. standing.*  
 Diagnosis of pulp conditions of primary and young permanent teeth; technics for treatment; growth and development pertaining of pedodontics; care of handicapped patients. Pettit.
- 652 Clinical Pedodontics** P 1  
*W. 2 clinic hrs.*  
*Prereq.: Dent. 4th yr. standing.*  
 Pettit.
- 653 Clinical Pedodontics** P 1  
*Sp. 2 clinic hrs.*  
*Prereq.: Dent. 4th yr. standing.*  
 Continuation of 652. Pettit.
- 661 Clinical Periodontics** P 1  
*A. 2 clinic hrs.*  
*Prereq.: Dent. 4th yr. standing.*  
 App.
- 662 Clinical Periodontics** P 1  
*W. 2 clinic hrs.*  
*Prereq.: Dent. 4th yr. standing.*  
 Continuation of 661. App.
- 663 Clinical Periodontics** P 1  
*Sp. 2 clinic hrs.*  
*Prereq.: Dent. 4th yr. standing.*  
 Continuation of 662. App.
- 672 Pharmacology** P 2  
*W. 1 cl., 2 clinic hrs.*  
*Prereq.: Dent. 4th yr. standing.*  
 The chemistry, indications, actions, and effects of antibiotics and analgesics. Wallace.
- 673 Pharmacology** P 2  
*Sp. 1 cl., 2 clinic hrs.*  
*Prereq.: Dent. 4th yr. standing.*  
 The chemistry of tranquilizers; indications for their use and their actions; a review of prescription writing. Wallace.
- 681 Complete Prosthodontics** P 3  
*A. 1 cl., 4 clinic hrs.*  
*Prereq.: Dent. 4th yr. standing.*  
 The clinical practice of special occlusal problems, temporomandibular joint disturbances, cleft palate and surgical prosthesis. Boucher.
- 682 Clinical Removable Prosthodontics** P 2  
*W. 4 clinic hrs.*  
*Prereq.: Dent. 4th yr. standing.*  
 Boucher and Heintz.
- 683 Clinical Removable Prosthodontics** P 2  
*Sp. 4 clinic hrs.*  
*Prereq.: Dent. 4th yr. standing.*  
 Continuation of 682. Boucher and Heintz.
- 684 Clinical Fixed Partial Prosthodontics** P 2  
*A. 4 clinic hrs.*  
*Prereq.: Dent. 4th yr. standing.*  
 Long.
- 685 Clinical Fixed Partial Prosthodontics** P 2  
*W. 4 clinic hrs.*  
*Prereq.: Dent. 4th yr. standing.*  
 Continuation of 684. Long.
- 686 Clinical Fixed Partial Prosthodontics** P 2  
*Sp. 4 clinic hrs.*  
*Prereq.: Dent. 4th yr. standing.*  
 Continuation of 685. Long.
- 700 Special Problems** P G 1-15  
 (800) Su, A, W, Sp.
- 700.01 Advanced Oral Surgery and Anesthesia**  
*Prereq.: Dent. postgraduate or graduate standing.*  
 Diagnosis and treatment of surgical conditions of the teeth and contiguous structures; advanced techniques in surgery and local and general anesthesia. Allison.
- 700.02 Advanced Orthodontics**  
*Prereq.: Dent. postgraduate or graduate standing.*  
 Applied osteology and myology in cephalometric roentgenographic interpretations; review of cephalic growth and development factors in normal occlusion; correction of malocclusions and dento-facial malformations. Williams and Wade.
- 700.03 Advanced Periodontics**  
*Prereq.: Dent. postgraduate or graduate standing.*  
 Diagnosis and treatment of periodontal disease; correlation between the disease of the periodontium and probable systemic diseases, and management of diseases of a purely dental origin. App.



**700.04 Advanced Prosthodontics**

*Prereq.: Dent. postgraduate or graduate standing.*

The diagnosis, treatment, and replacement of missing or lost teeth and parts of the mouth by prosthetic appliances; complete removable partial, or fixed restorations. *Boucher, Heintz, and Woelfel.*

**700.05 Advanced Oral Pathology and Diagnosis**

*Prereq.: Dent. postgraduate or graduate standing.*

The interrelationships of gross microscopic, and clinical pathology; current advances in the field of oral pathology and diagnosis. *Kolas and Cavalaris.*

**700.06 Advanced Endodontics**

*Prereq.: Dent. postgraduate or graduate standing.*

The diagnosis of pulp and periapical diseases and their treatment by surgical and non-surgical techniques. *Marshall.*

**700.07 Advanced Pedodontics**

*Prereq.: Dent. postgraduate or graduate standing.*

Lectures, seminars and clinical practice encompassing all phases of pedodontics and interceptive orthodontics. *Pettit and Rule.*

**700.08 Advanced Dental Materials**

*Prereq.: Dent. postgraduate or graduate standing.*

The science of dental materials. *McConnell.*

**700.09 Advanced Oral Histology and Embryology**

*Prereq.: Dent. postgraduate or graduate standing.*

The principles of histology and embryology applied to the structures in the oral region—their development, morphology, functions, and clinical relationships. *Melfi.*

**700.10 Advanced Operative Dentistry**

*Prereq.: Dent. postgraduate or graduate standing.*

Clinical problems in operative dentistry and their correlation with problems in related fields of dentistry; special emphasis on preventive dentistry. *Wilson.*

**785 Histologic Laboratory Technique P G 1-5**

(600) *Su, A, W, Sp.*

*Prereq.: Permission of instructor.*

The preparation of oral and dental tissues for microscopic study. *Permar.*

**793 Individual Studies P G 1-5**

(693) *Su, A, W, Sp.*

*Prereq.: Permission of instructor.*

Special assignments in advanced phases of dentistry problems; students will elect to work in desired subjects after a conference with the instructor in charge.

**795 Seminar in Dentistry P G 1**

(805) *A, W, Sp. 1 cl.*

*Prereq.: Dent. graduate standing.*

A discussion of recent advances in all branches of dental science. Review of original literature. *Conroy.*

**999 Research in Dentistry G Arr.**

(950) *Su, A, W, Sp.*

Research for thesis purposes only.

## Economics

Office: 239 Hagerty Hall, 1775 South College Road

**Professors** Bodenhorn (Acting Chairman), Bowers (Emeritus), Brunner, Condoide (Emeritus), Craig, Eason, Harrison, James, Lynn, Miller, Oster, Parnes, Patton (Emeritus), Quantius, Sherman, and Tybout; **Adjunct Professor** Raskind; **Associate Professors** Comitini (Visiting), Cunyningham, Dewald, Fleisher, Kelley, L'Esperance, McCalmont, and Tuttle (Emeritus); **Assistant Professors** Barth, Botte (Emeritus), Boyd, Brown, Bushnell, Cameron, Gold, Laden, Michael, Nestel, Stearns (Visiting), Stevens (Emeritus), Walton, and Weicher; **Lecturer** Stocker

The Department of Economics offers opportunities for special study in the following subfields:  
Economic Theory and History of Thought

Economic History

Money, Banking, and Monetary Policy

Government Finance and Expenditure

Quantitative Methods in Economics

Economic Development and Development Planning

International Economics

Structure and Regulation of Industry

Labor Economics

National Security Economics

Soviet Economy

Open Field

**201 The Economic System U 5**

(501) *Su, A, W, Sp. 5 cl.*

Study of basic characteristics, processes, and institutions of the economic system; significant problems arising in its operations; proposed solutions. *Fleisher and Staff.*

**402 Introduction to Economic Theory U 5**

(502) *Su, A, W, Sp. 5 cl.*

*Prereq.: 201 or equiv.*

Introduction to economic analysis, including the theory of the market; supply, demand, and price determination; income distribution; aggregate income and employment determination. *Fleisher and Staff.*

**442 Elementary Economic Statistics U 5**

(542) *Su, A, W, Sp. 4 cl. 1 2-hr. lab.*

*Prereq.: Completion of Math. requirement in college of student's registration, or Math. 116 and 117 where there is no college Math. requirement.*

Discrete frequency distributions; probability and probability distributions; statistical inference including the Bayesian approach; estimation; one-way analysis of variance; simple linear regression and correlation; index numbers. *Brown, Bushnell, Cunyningham, Laden, L'Esperance, Nestel, and Staff.*

**500 Ideas of the Great Economists U G 3**

(600) *Sp. 3 cl.*

*Prereq.: 402 or equiv.*

Critical analysis of ideas of great economists, factors which influenced those ideas; their impact upon social and economic development of the modern world. *Harrison.*

**501 Intermediate Micro-economic Theory U G 3**

*Su, A, W.*

*Prereq.: 402 or equiv.*

Commodity price and output determination; factor price determination and functional income distribution; analysis for different types of markets. *James and Staff.*

**502 Intermediate Macro-economic Theory U G 3***W, Sp.**Prereq.: 402 or equiv.; 501 recommended.*

Analysis of the determinants of national output, income and employment levels; theory of economic growth and progressive equilibrium in an economy. *James and Staff.*

**506 Current Economic Problems U G 3***(606) Su. 3 cl.**Prereq.: 402 or equiv.*

*Not open to undergraduate and graduate students majoring in Econ.*

Examination of current problems; optimum levels of employment; conditions underlying consumer expenditures; savings, investments; inflation, deflation; agriculture, public works, housing; regional development.

**508 Comparative Economic Systems U G 4***(690) W. 4 cl.**Prereq.: 402 or equiv.*

*Not recommended for students who plan to take 607 and not open to students with credit for 690.*

Comparative study of development and operation of economic institutions and principles in capitalist, socialist, communist, and fascist economic systems. *Bodenhorn and Eason.*

**512 Economic and Business History of Selected American Firms U G 3***(612) W. 3 cl.**Prereq.: 402 or equiv.*

Evolving corporate enterprise within the framework of American capitalist doctrine; analysis of outstanding firms; influence of unions and government in innovation, pricing, and other practices. *Harrison.*

**520 Money and Banking U G 4***(623) Su, A, W, Sp. 4 cl.**Prereq.: 402 or equiv.*

*Not open to graduate students in Econ.*

Organization, operation, and economic significance of our monetary and banking system are discussed with special reference to current conditions and problems. *Brunner, Craig, Dewald, Quantius, and Staff.*

**530 Government Finance in the American Economy U G 4***(636) Su, A, W, Sp. 4 cl.**Prereq.: 402 or equiv.*

*Not open to graduate students in Econ.*

Analysis of fiscal institutions and decision making in the public sector of the American economy: budget planning and execution; taxation, debt, fiscal policy. *Cameron, Gold, Stocker, Walton, Weicher, and Staff.*

**553 Population U G 3***(653) A. 3 cl.**Prereq.: 201 or equiv.*

Impact of world population growth upon resources, productive capacities, scales of living, national defense, and international economic relations; critical consideration of population theories and policies. *Harrison.*

**560 International Economic Relations U 3***W, Sp. 3 cl.**Prereq.: 402 or equiv..*

*Not recommended for students who plan to take 665 and 666.*

Survey of international economic relations; the basis of world trade; commercial and financial policy, particularly of the United States; and recent international economic organization. *Michael and Staff.*

**570 Government and Business U G 5***(671) A, Sp. 5 cl.**Prereq.: 402 or equiv.*

Economics and legal aspects of Government regulation of business in the United States; philosophies and concepts of public control; contemporary problems. *Boyd, Lynn, and Sherman.*

**580 Labor Economics and Industrial Relations U G 4***(668) Su, A, W, Sp. 4 cl.**Prereq.: 402 or equiv.*

*Not open to graduate students in Econ.*

Survey of the field of labor economics; trade unionism, collective bargaining; wage determination, employment, unemployment; labor legislation. *Barth, Fleisher, Kelley, Miller, and Parnes.*

**599 Honors Course U 1-15***(700) Su, A, W, Sp.*

*Open only to students enrolled in the Honors Program of the Colleges of the Arts and Sciences or the College of Administrative Science.*

*Repeatable to a maximum of 15 qtr. hrs., but must be taken for at least 2 qtrs.*

Program of readings, conferences, and reports arranged for the student who is a candidate for "Degree with Distinction" in Economics. *Brown and Fleisher.*

**607\* Economics of Socialism U G 4***(697) A. 4 cl.**Prereq.: 501 and 502 or equiv.*

Survey of socialist thought and movements; relations of socialist thought to the theory and practice of socialist economics; planning, allocation, pricing, controls. *Bodenhorn and Eason.*

**608 Soviet Economic System U G 4***(698) Su, Sp. 4 cl.**Prereq.: 501 and 502 or equiv.*

*Not open to students with credit for 698.*

Survey of the Soviet economy with emphasis on planning; allocation of resources; spending, saving, and investing; public finance; agriculture; labor; and international economic relations. *Condoide and Eason.*

**613 Economic History of the United States U G 5***(713) W. 2 2-hr. cl.**Prereq.: 402 or equiv.*

General survey from discovery of America to present; European economic background; westward movement and its effects; development of economic institutions in the U. S. *Harrison and Walton.*

**614 Economic History of Western Europe U G 5***(714) A. 3 cl.**Prereq.: 402 or equiv.*

General survey from ancient to modern times; interrelations between economic institutions, general culture, and economic thought; modern capitalism; agricultural, commercial, and industrial revolutions in modern times. *Harrison and Walton.*



**625 National and International Money Markets U G 3**

A. 3 cl.

Prereq.: 520 or equiv.

Organization, functions, and control of money markets and their submarkets; flow of funds in these markets and investment policies of market participants. *Brunner and Quantius.*

**631 Federal Finance and Fiscal Policy U G 4**

(634) A. 4 cl.

Prereq.: 501, 502, and 530 or permission of instructor.

Not open to students with credit for 630.

The economics of government spending and taxation; analysis of the fiscal role and instruments of government and their effects on the economy. *Cameron, Gold, and Stocker.*

**632 Government Budgeting and Expenditure Criteria U G 4**

W. 4 cl.

Prereq.: 501.

Analyses of various economic criteria for efficient decision making in the budgeting process; the various types of budgets and their relationship to efficient expenditure policy. *Cameron, Gold, and Stocker.*

**633 State-Local Government Finance U G 4**

Sp. 4 cl.

Prereq.: 530 or 501 and 502.

Economic analysis of revenues and expenditures of state and local governments; vertical and horizontal relationships between agencies and units; specific problems in these areas. *Cameron, Gold, and Stocker.*

**640 Probability and Statistical Decision Theory U G 3**

(740) W. 3 cl.

Prereq.: 442 or equiv.

Theory of probability and stochastic processes; statistical inference, tests of significance and analysis of variance; statistical decision theory. *Cunningham, L'Esperance, and Nestel.*

**641 Applied Regression and Correlation Analysis U G 3**

(741) Sp. 3 cl.

Prereq.: 640 or equiv.

The general linear regression model; matrix algebra; multiple correlation, analysis of variance and tests of significance; specification errors. *Cunningham, L'Esperance, and Nestel.*

**644 Mathematical Economic Theory U G 3**

A. 3 cl.

Prereq.: 402 or equiv., *College Algebra* or permission of instructor.

Mathematical analysis of linear economic theory; application of differential calculus, difference equations and mathematical programming to marginal analysis, economic dynamics, simulation models, and price theory. *Cunningham and Loden.*

**645 Linear Programming and Economic Analysis U G 5**

(745) W. 3 1½-hr. cl.

Prereq.: 402 or equiv., and 10 cr. hrs. in college level Math., or permission of instructor.

Techniques of linear programming and input-output analysis applied to economic problems of allocation and valuation within the firm and the economy. *Bushnell and Tybout.*

**646 National Income Accounts and Flow of Funds Analysis U G 4**

(656) A. 4 cl.

Prereq.: 402 or equiv. and Acc. 201 or 211 or equiv.

Not open to students with credit for 656.

Theory and practice of aggregate economic analysis illustrated through national income and flow of funds accounts.

**650 Economic Development U G 4**

(610) A. 2 2-hr. cl.

Prereq.: 402 or equiv.

Not open to students with credit for 610.

Empirical and theoretical consideration of long-term economic changes, including changes in industrial structure, technology, and level of national product; emphasis on developing economics. *Barth, Kelley, and Michael.*

**652 Development Planning U G 4**

(667) W. 4 cl.

Prereq.: 650 or equiv.

Analysis of the economics of planning and its major applications to private and public planning; procedures and techniques of development planning. *Barth, Kelley, and Michael.*

**655† Income Distribution and Public Policy U G 3**

Sp. 3 cl.

Prereq.: 402 or equiv.

Trends in income distribution; analysis of measures of income distribution; policies influencing distribution; effects of income distribution on the economy. *Craig and Fleisher.*

**663 Economic Problems of Western Europe U G 5**

A. 5 cl.

Prereq.: 402 or equiv.

European reconstruction; European Economic Community and the Free Trade Area; implications. *Condoids.*

**665 International Trade and Finance U G 5**

W. 5 cl.

Prereq.: 520 or equiv.

Specialized production, comparative cost and advantages, and the gains from trade; international payments and receipts, possible equilibrium; balance-of-payments adjustments under different monetary systems; reforms. *James.*

**666 International Commercial Policy U G 3**

Sp. 3 cl.

Prereq.: 402 or equiv.

Tariffs and other trade restrictions; economic effects of protective tariffs; regional economic integration; U. S. commercial policies; multilateral tariff reductions of America and Common Market. *James.*

**670 Competition and Public Policy U G 3***W. 3 cl.**Prereq.: 570 or equiv. or 20 cr. hrs. of Econ.*

Nature, role, and regulation of competition; market structure and social performance; antitrust laws; current economic, legal, and policy problems in the antitrust area. *Boyd, Lynn, and Raskind.*

**672†\* Public Utilities and Public Works U G 3***Sp. 3 cl.**Prereq.: 501 or 570 or equiv. or permission of instructor.*

Study of general economic characteristics and regulation of water, gas, electric, communications, and related industries, including atomic power. Government regulation versus public ownership. *Boyd and Tybout.*

**676 Transportation Economics U G 4***A, W. 4 cl.**Prereq.: 501 or 570 or equiv. or permission of instructor.*

Study of general economic characteristics and government regulation of rail, motor, water, air, and pipeline carriers. Consideration of competitive relations between modes of transportation. *Boyd and Tybout.*

**677 Transportation Planning and Coordination U G 4***Sp. 4 cl.**Prereq.: 676.*

Transportation, local development and industrial location; criteria for public investment in highway, airport, and other transportation facilities. *Boyd and Tybout.*

**680 Social Insurance U G 3***Sp. 3 cl.**Prereq.: 580 or equiv. or permission of instructor.*

Social insurance systems to provide economic and social security against the hazards of unemployment, sickness and injury, dependent old age, premature death, and liability claims. *Parnes.*

**683 Unions and Collective Bargaining U G 5***A, W. 3 cl.**Prereq.: 580 or equiv.*

Development of unionism in the United States; structure and government of contemporary labor organizations; collective bargaining; settlement of labor-management disputes. *Barth, Miller, and Parnes.*

**684 Labor and the Government U G 3***Su, W, Sp. 3 cl.**Prereq.: 580 or equiv.*

Public policy with respect to labor problems and industrial relations; role of legislative, judicial, and executive branches of state and federal governments. *Barth, Miller, and Parnes.*

**688 Economics of the Labor Market U G 4***Sp. 2 2-hr. cl.**Prereq.: 501, 502, and 580 or equiv.*

Materials and methods of labor market analysis; the measurement and behavior of unemployment, employers' and employees' labor market behavior; wage determination and labor allocation. *Parnes.*

**693 Special Problems****U G 1-5***(699) Su, A, W, Sp.*

*Advanced readings in Econ. and related fields. Juniors registered for 693 must have an average of "B" or better in all Econ. courses; and a cumulative point hour of 3.0 or better, 1-5 cr. hrs. each qtr. in any one field, repeatable to a maximum of 15 cr. hrs.*

- a. Economic Theory and History of Thought
- b. Economic History
- c. Money, Banking, and Monetary Policy
- d. Government Finance and Expenditure
- e. Quantitative Methods in Economics
- f. Economic Development and Development Planning
- g. International Economics
- h. Structure and Regulation of Industry
- i. Labor Economics
- j. National Security Economics
- k. Soviet Economy
- l. Open Field

**694 Special Studies****U G 1-5***(798) A, W, Sp.*

*Advanced courses in Econ. and related fields. 1-5 cr. hrs. each qtr. in any one field. Not more than 5 cr. hrs. may be received in any one field nor a total of more than 15 cr. hrs. in the course.*

- a. Economic Theory and History of Thought
- b. Economic History
- c. Money, Banking, and Monetary Policy
- d. Government Finance and Expenditure
- e. Quantitative Methods in Economics
- f. Economic Development and Development Planning
- g. International Economics
- h. Structure and Regulation of Industry
- i. Labor Economics
- j. National Security Economics
- k. Soviet Economy
- l. Open Field

**695 Economics of National Security U G 3***(770) A. 3 cl.**Prereq.: 402 or equiv.**Not open to students with credit for 679.*

Analysis of economic problems arising from defense and war; emphasis on implication of defense and war economy and on economic theory and institutions. *Sherman.*

**Introduction to National Security***(See Nat. Sec. Pol. S. 702)***742 Econometrics****U G 3***A. 2 1½-hr. cl.**Prereq.: 641 or equiv.*

Review of the general linear model; identification; estimating criteria; single and simultaneous equation estimation; econometric application. *Cunningham and L'Esperance.*

**Research Principles and Techniques in National Security***(See Nat. Sec. Pol. S. 785)*



**800 Research Methods in Economics G 2**  
A. 1 2-hr cl.

*Required of all new graduate students in Econ.*

Methods of economic research, choice of research topics, and presentation and evaluation of results obtained. *Brunner and Staff.*

**Seminar in National Security Research**

(See Nat. Sec. Pol. S. 801)

**801 History of Economic Thought G 4**  
W. 3 cl.

Economic writings from the earliest times to 1870. *Bodenhorn.*

**802 History of Economic Thought G 4**  
Sp. 3 cl.

*Prereq.: 801.*

Orthodox and critical authors from 1870 to J. M. Keynes. *Bodenhorn.*

**803 History of Economic Thought G 3**  
Sp. 3 cl.

*Not open to graduate students in Econ.*

Economic writings from Smith to Keynes. *Lynn.*

**804 Political Economy G 3**  
(879) W.

*Open only to doctoral candidates in Department of Bus. Org.*

An evaluation of selected topics in economics. *Lynn.*

**805 Micro-economic Theory G 5**  
(708) A, Sp. 4 cl.

Nature of economic analysis; theory of demand, costs, and prices; factor price determination and functional income distribution; competition, oligopoly, monopoly, and monopsony. *Boyd, Brown, Dewald, Laden, and Staff.*

**806 Macro-economic Theory G 3**  
(709) A, W. 2 cl.

Theory of income and employment; Keynesian aggregate supply and demand; consumption, saving, and the multiplier; determinants of investment and the accelerator; government's role. *Craig, Dewald, Laden, L'Esperance, and Staff.*

**807†\* Theories of Welfare Economics G 3**  
Sp. 3 cl.

*Prereq.: 805 or equiv.*

Study of economic standards and their application to economic welfare, or well-being; mathematical techniques are employed. *Tybout.*

**808 Advanced Micro-economic Theory G 5**  
(804A) Sp.

*Prereq.: 805 and 806 or equiv.*

*Tybout.*

**809 Advanced Macro-economic Theory G 5**  
(804B) A.

*Prereq.: 805 and 806 or equiv.*

*Bodenhorn.*

**820 Monetary Theory G 3**  
W. 2 1½-hr. cl.

*Prereq.: 520, 805, and 806 or equiv.*

Role of money in theoretical analysis of forces determining and influencing level of income, employment, and prices. *Brunner and Dewald.*

**821 Bank Structure and Regulation G 3**  
Sp. 3 cl.

*Prereq.: 520, 805, and 806 or equiv.*

Relation of bank regulation and supervision to composition of banking industry; impact of differing banking structures on economic growth and stability; proposals for structural changes. *Quantius.*

**831\* Legal and Economic Problems G 3**  
in Taxation

A.

Legal, economic, and administrative problems in taxation. *Lynn.*

**842 Quantitative Econometric Methods G 2**  
A. 1 cl.

*Prereq.: Permission of instructor or concur. 742.*

Computerized application of econometric methods developed in 742; theory and application of advanced quantitative research methods. *Cunningham and L'Esperance.*

**843 General Business Conditions G 3**  
Analysis

(852) A, W, Sp.

*Prereq.: 20 cr. hrs. in Econ. and/or Bus. Org. and permission of instructor.*

*Not open to students with credit for 852.*

*Not for graduate credit for majors in Econ.*

Theoretical and applied analysis of general economic conditions and their relation to decisions of the firm. *Craig, Cunningham, and L'Esperance.*

**850 Advanced Economic Development G 3**  
W. 1 cl.

*Prereq.: 650.*

*Not open to students with 6 cr. hrs. for 810.*

*Repeatable to a maximum of 6 cr. hrs.*

Advanced treatment of theoretical and empirical topics in economic development. *Kelley and Michael.*

**899 Interdepartmental Seminars G 1-5**  
A, W, Sp.

(See under Interdepartmental Seminars.)

**908 Seminar in Soviet Economic Problems G 3**

(898) A. 3 cl.

*Prereq.: 608 or permission of instructor.*

*Not open to students with credit for 998 taken during 1967-68.*

Current problems of the Soviet economy; economic growth, price policies, changing structure of the economy. *Eason.*

**910 Seminar in Economic History, G 3**  
American and European

(811) Sp.

*Prereq.: 613 and 614 or equiv. or permission of instructor.*

*Not open to students with 6 cr. hrs. for 811.*

*Repeatable to a maximum of 6 cr. hrs.*

Selected research topics in Economic History. *Harrison and Walton.*

**920 Seminar in Monetary Policy G 3**  
*Sp. 2 cl.*  
*Prereq.: 820 and 821.*

Application of monetary theory to issues of public policy in banking and monetary affairs; examination of public hearings and policy literature. *Brunner and Dewald.*

**930 Seminar in Government Finance G 3**  
*(880) W. 1 cl.*  
*Prereq.: 631 and 632.*  
*Not open to students with 6 cr. hrs. for 830.*  
*Repeatable to a maximum of 6 cr. hrs.*

Analysis of theoretical and applied aspects of fiscal economics in the American and foreign economies; selected topics of current and permanent importance. *Gold and Stocker.*

**940 Seminar in Econometrics G 3**  
*(848) W, Sp. 1 cl.*  
*Prereq.: 742 and 842 or equiv. or permission of instructor.*  
*Not open to students with 6 cr. hrs. for 848.*  
*Repeatable to a maximum of 9 cr. hrs.*

Examination of economic problems whose solutions may advantageously be sought by use of the methods of mathematics and mathematical statistics. *Cunnyngham and L'Esperance.*

**950+\* Seminar in Economic Development G 3 and Planning**  
*(891) Sp. 1 cl.*  
*Prereq.: 652 or equiv. or permission of instructor.*  
*Repeatable to a maximum of 6 cr. hrs.*

**960 Seminar in International Economic Problems G 3**  
*(860) A. 3 cl.*  
*Prereq.: 665, 666.*  
*Not open to students with credit for 860.*

Seminar in analytical problems, theoretical and applied, of international economic adjustments; development of techniques for implementation of policies. *James.*

**970\* Seminar in Structure and Regulation of Industry G 3**  
*(870) W. 1 cl.*  
*Prereq.: 670 or 672 or 676 or equiv.*

Economic bases for government participation in business activities: antitrust, regulation, and collective decision making. *Tybout.*

**980 Seminar in Industrial Relations G 3**  
*(880) W. 2 cl.*  
*Prereq.: 683 or equiv. or permission of instructor.*  
*Not open to students with credit for 880.*

Selected topics and issues in contemporary trade unionism and collective bargaining. *Miller and Parnes.*

**981 Seminar in the Economics of the Labor Market G 3**  
*(881) Sp. 1 cl.*  
*Prereq.: 688 or equiv. or permission of instructor.*  
*Not open to students with credit for 881.*

Selected topics and issues in wage determination, employment and unemployment. *Kelley, Miller, and Parnes.*

**982 Seminar in Social Insurance G 3**  
*(882) Sp. 1 cl.*  
*Prereq.: 680 or equiv. or permission of instructor.*  
*Not open to students with credit for 882.*

Analysis of federal and state social insurance measures and economic problems raised by them; the place of social insurance in the economic system. *Parnes.*

**991 Problems in National Security Economics G 3-5**  
*(871) W. 2 cl.*  
*Prereq.: 695 or equiv. or permission of instructor.*  
*3-5 cr. hrs. at option of instructor.*  
*Not open to students with credit for 871.*  
*Repeatable to a maximum of 10 cr. hrs.*

Seminar designed to analyze in depth selected economic problems of national defense and defense-related activities. *Sherman.*

**998 Research in Economics: Thesis G Arr.**  
*(950) Su, A, W, Sp.*  
 Research for thesis purposes only.

**999 Research in Economics: Dissertation G Arr.**  
*(950) Su, A, W, Sp.*  
 Research for dissertation purposes only.

## Education

Office: 127 Arps Hall, 1945 North High Street

Professors Cunningham (Dean), Alberty, Allen, Arisman, Blanke, Burnett, Burr, Cassidy, Conrad, Cook, Coon, Corbally, Culbertson, Cyphert, Dale, Dinitz, Eberhart, Frazier, Frymier, Gustad, Hack, Hanna, Harding, Haws, Hicks, Huck, Huelsman, Huffman, Hull, Jennings, Jewett, Johnson, Kemp, Kircher, Kiohr, Larnee, Laughlin, Lazar, Lewis, Loomis, Lux, McBride, Mehl, Mooney, Muessig, Peters, Phelps, Ramseyer, Ray, Reese, Reynard, Riccio, Richardson, Roaden, Schlessinger, Schneider, Staub, Stewart, Strom, Sutton, Taylor, Tomlinson, Towers, Trimble, Tyler, Wagner, Wells, Wohlers, Wolf, Zidonis; Associate Professors Anderson, Andrews, Bozeman, Brittin, Buchanan, Crosswhite, Dowling, Duncan, Eboch, Fogarty, Gibbony, Gilliom, Glat, Howe, Hunt, King, Languis, Miller, Novak, Orr, Otto, Pimsleur, Sanders, Schatz, Schmieder, Smith, Stewart, Straub, Stufflebeam, Stull, Tewksbury, Tolbert, Utterback, Widdall, Williams; Assistant Professors Bargar, Blum, Buffer, Cady, Candoli, Cavin, Farquhar, Fox, Frankie, Galloway, Griffith, Hightshoe, Hoffman, Ingersoll, Jenkins, Kerber, Koste, Mayer, Nystrand, Ohliger, Osborne, Rolfe, Schoen, Stevens, Trzebiatowski, Tyler, Ullman, Voelker, Wigtil, and Woodruff.

## Areas

Adult Education—672, 673, 693.33, 925.33, 931, 932, 934, 993.33, 999.  
 Audio Visual Materials—675, 693.46, 925.46, 993.46, 999.  
 Curriculum and Instruction—K12, 435, 693.49, 816, 859, 860, 861, 862, 863, 864, 865, 866, 867, 868, 869, 870, 871, 872, 873, 925.49, 999.  
 Dental Hygiene Education—588.30.  
 Educational Administration—693.44, 899, 925.44, 946, 947, 949, 950, 951, 952, 953, 954, 955, 956, 957, 958, 959, 960, 961, 993.44, 999.



Educational Research—693.48, 725, 858, 925.48, 925.50, 964, 965, 966, 967, 968, 993.48, 999.  
 Elementary Education—460, 461, 467, 501, 502, 507, 508, 511, 513, 585, 693.10, 811, 812, 813, 814, 815, 816, 817, 818, 819, 820, 821, 823, 824, 827, 828, 829, 920, 925.10, 948, 993.10, 999.  
 Exceptional Children—588.04, 588.32, 588.54, 652, 653, 654, 655, 656, 657, 659, 660, 661, 662, 663, 665, 666, 667, 668, 669, 693.47, 712, 713, 714, 715, 717, 718, 719, 847, 848, 885, 925.47, 993.47, 999.  
 Fine Arts—586.03, 587.03.  
 Guidance—693.34, 874, 875, 876, 877, 878, 879, 880, 881, 925.34, 993.34, 999.  
 Health Education—587.24.  
 Higher Education—693.35, 851, 925.35, 938, 939, 940, 941, 942, 943, 999.  
 Introduction to Education—108.  
 Music—586.14, 586.15, 587.14, 587.15.  
 Philosophy and History of Education—624, 632, 636, 637, 693.40, 693.41, 722, 723, 724, 911, 912, 913, 914, 915, 916, 917, 925.40, 925.41, 927, 928, 929, 993.40, 993.41, 999.  
 Physical Education—586.07, 586.08, 587.07, 587.08.  
 Radio and Television Education—588.09, 677, 693.43, 925.43, 993.43, 999.  
 Reading—732, 853, 854, 855, 925.56.  
 Teacher Education—693.36, 768, 925.36, 937, 944, 999.

## Secondary Education

Teaching of English—560, 561, 587.25, 612, 613, 614, 693.25, 925.25, 970, 971, 993.25, 999.  
 Teaching of Foreign Languages—540, 586.45, 587.45, 616, 617, 618, 693.45, 839, 925.45, 993.45, 999.  
 Teaching of Mathematics—546, 587.26, 621, 622, 693.26, 841, 842, 843, 844, 845, 925.26, 993.26, 999.  
 Teaching of Science—551, 587.27, 625, 626, 627, 693.27, 849, 850, 851, 925.27, 993.27, 999.  
 Teaching of Social Studies—526, 527, 587.28, 624, 693.28, 925.28, 993.28, 999.  
 Teaching of Speech—442, 556, 587.09, 588.09, 631, 693.09, 925.09, 993.09, 999.

## Vocational and Practical Arts Education

Business Education—206, 207, 208, 209, 210, 211, 212, 520, 521, 523, 524, 587.23, 601, 602, 693.23, 800, 801, 802, 803, 804, 805, 925.23, 993.23, 999.  
 Distributive Education—529, 587.29, 605, 606, 608, 693.29, 807, 925.29, 993.29, 999.  
 Industrial Arts Education—120, 231, 232, 233, 234, 235, 242, 243, 246, 251, 255, 420, 424, 425, 430, 433, 532, 533, 534, 587.21, 610, 693.21, 807, 832, 833, 834, 835, 836, 837, 925.21, 993.21, 999.  
 Trade and Industrial Education—575, 587.22, 649, 693.22, 925.22, 993.22, 999.  
 Workshops and Field Experience—289, 690, 691, 692, 884, 933.

### 108 Introduction to the Study of Education U 3

(408) *Su, A, W, Sp. 3 cl.*

An introductory study of cultural factors that affect education, with students helped to understanding through an examination of their own lives.

### 120 The Laboratory of Industries U 4

(440) *A, W, Sp. 5 2-hr. cl. and lab.*

Orientation to technological origins of industrial arts teaching through experiences with tools, materials, processes, and products.

### 206 Typewriting I U 2

(401) *A. 4 cl.*

*Required in the 2nd yr. of students majoring in business education who lack proficiency required for admission to Ed. 210.*

Placement tests for students having had previous training in typewriting will be given during the first class meeting of 206 and 207. Students reporting for placement tests need not be registered in the course. Development of skill in the operation of the typewriter, in producing copy, and in concomitant learnings: the place of typewriting in business.

### 207 Typewriting II U 2

(402) *W. 4 cl.*

*Prereq.: 206.*

Continuation of 206.

### 208 Shorthand I U 2

(404) *W. 4 cl.*

*Required in the 2nd yr. of students majoring in business education who lack proficiency required for admission to Ed. 210.*

Placement tests for students having had previous training in shorthand will be given during first class meeting of 208 and 209. Students reporting for placement tests need not be registered in the course. The theory of Gregg shorthand, development of good shorthand penmanship, the ability to take dictation at increasing rates of speed, and the ability to transcribe longhand using correct punctuation and spelling.

### 209 Shorthand II U 2

(405) *Sp. 4 cl.*

*Prereq.: 208 or equiv.*

Continuation of 208.

### 210 Advanced Stenography I U 4

(471) *A. 4 2-hr. cl.*

*Prereq.: 207 and 209 or equiv.*

For placement tests in typewriting and shorthand, see Education 206 and 208. Continued development of speed and accuracy in shorthand and typewriting; development of skill in transcribing; transcribing voice-recorded dictation; duplicating.

### 211 Advanced Stenography II U 4

(472) *W. 4 cl.*

*Prereq.: 210.*

Continuation of 210.

### 212 Advanced Stenography III U 4

(473) *Sp. 4 cl.*

*Prereq.: 211.*

Continuation of 211.

### 231 Elements of Woodworking U 4

(441) *A, Sp. 5 2-hr. cl. and lab.*

*Prereq.: 120, 242, and Engr. Gr. 100.*

Experience in planning and developing skills and knowledge of the construction of articles made of wood and of the industries involved.

### 232 Elements of Woodworking U 4

(442) *A, Sp. 5 2-hr. cl. and lab.*

*Prereq.: 231.*

Continuation of 231.

### 233 Elements of Metalworking U 4

(443) *A, Sp. 5 2-hr. cl. and lab.*

*Prereq.: 120, 242, and Engr. Gr. 100.*

Experience in planning and developing skills and knowledge of the construction of articles made of metal and of the industries involved.

**234 Elements of Metalworking** U 4  
 (444) W. 5 2-hr. cl. and lab.  
*Prereq.: 120, 242, and Engr. Gr. 100.*  
 Continuation of 233.

**235 Elements of Printing** U 4  
 (445) A, Sp. 5 2-hr. cl. and lab.  
*Prereq.: 120, 242, and Engr. Gr. 100.*  
 Experience in letter press, planography, and miscellaneous processes of printing, binding, and an over-view of the graphic arts industry.

**242 Problem Planning in Industrial Arts** U 3  
 (460) A, Sp. 2 2-hr. cl. and lab.  
*Prereq.: Engr. Gr. 100 or 102.*

The planning of problems and projects suitable for the different areas and grade levels of the secondary school with references to function, style, and construction.

**243 Elementary School Industrial Arts Activities** U 5  
 (522) Su, A, W, Sp. 5 2-hr. cl. and lab.  
*Prereq.: 461 or equiv. Major standing in Elementary or Special Ed.*

Laboratory experiences involving the use of tools, materials, processes, and products through which society supplies its need for food, clothing, shelter, tools, machines, records, utensils, and transportation.

**246 Letter Press and Offset Printing** U 4  
 (560) W. 5 2-hr. cl. and lab.  
*Prereq.: 230 and Photog. 201.*

Experience in letter press, photolithography, composition, bookbinding, editing, and publishing a limited edition. Professional consideration includes course materials, and planning a graphic arts laboratory.

**251 Work Experience in Industry** U 3-6  
 (581) Su, A, W, Sp. Cl. hrs. arr.  
*Prereq.: Major standing in Indust. Arts or Trade and Indust. Ed., and permission of instructor. Credit in 251, 289, and 587, not to exceed 22 cr. hrs.*

A firsthand study of the working conditions, methods, and processes of industry and their implication for the teaching of industrial arts.

**255 The Handicrafts** U 4  
 (585) A, W, Sp. 5 2-hr. cl. and lab.  
*Repeatable to a maximum of 12 cr. hrs.*

Designed to develop skills and knowledge in the use of the common areas of handicrafts such as leather, metals, plastics, wood, and the graphic arts.

**289 Field Service Experiences**  
 (505)

Professional service with children or youth in some school or community agency. Supervision by both college and agency staff, weekly seminar, and evaluation paper.

**289.01† Interpretation of September Field Experience in Schools** U 2  
 A.

Limited to students who have completed 10 full schools days of service in schools in the immediately preceding September.

**289.02† Experience in Community Agencies** U 2-5

For students in all curricula in teacher education (elementary, secondary, and special subject areas) except those students registering for the special section as listed below.

**289.03 Fine Arts** U 2-5  
 A, W, Sp.

For students in the curriculum in Fine Arts Education.

**289.04 Speech and Hearing Therapy** U 3  
 A, W, Sp.

For students in the Speech and Hearing Therapy Curriculum.

**289.05 Able Student Program** U 3  
 A, W, Sp.

For students in the Able Student Program.

**289.06 Public Recreation** U 2-5  
 Su, A, W, Sp.

For students in the curriculum in Public Recreation.

**289.07 Physical Education (Men)** U 2-5  
 A, W, Sp.

For students in the curriculum in Physical Education for Men.

**289.08 Physical Education (Women)** U 2-5  
 A, W, Sp.

For students in the curriculum in Physical Education for Women.

**289.09 Speech and Radio-Speech** U 2-5  
 Su, A, W, Sp.

For students in the curricula in Speech and Radio-Speech.

**420 Elements of Electricity in Industrial Arts** U 4  
 (446) W, Sp. 5 2-hr. cl. and lab.

*Prereq.: 120, 242, Engr. Gr. 100, Math. 116, and Physics 113.*

An introduction to the principles and practices of electricity and electronics as these apply to industrial arts programs in secondary schools, and a study of the industries involved.

**424 Introduction to Power Mechanics** U 4  
 (450) A, W. 5 2-hr. cl. and lab.  
*Prereq.: 120, 242, Engr. Gr. 100, Physics 111, and Math. 116.*

An introduction to the field of industrial arts power and transportation; an over-view of the design, function, and operation of internal combustion engines and their auxiliaries.

**425 Internal Combustion Engines** U 4  
 (451) W. 5 2-hr. cl. and lab.  
*Prereq.: 424.*

A technical study of internal combustion engines and automotive, marine, and aircraft equipment; experiences in engine analysis, malfunction diagnosis, maintenance, and repair.

**430 Residential and Industrial Utilization of Electrical Power** U 4  
 (456) W. 5 2-hr. cl. and lab.  
*Prereq.: 420.*

An introduction to the principles and practices of electricity and electronics applicable to industrial arts programs in secondary schools, and a study of the industries involved.



**433 The Teaching of Driver Education U 3**  
(547) Su, A, Sp. 1 2-hr. cl., 1 2-hr. lab.

*Prereq.: 435, 4th yr. standing and valid driver's license.*

*Graduates of the College of Education who have completed this course will be eligible for certification to teach Driver Training Courses in the secondary schools of Ohio.*

Designed to prepare teachers to organize and conduct driver training classes in the secondary schools, including methods of teaching, scheduling, and other pertinent details.

**435 Theory and Practice in Secondary Education U 5**

(535) Su, A, W, Sp. 3 cl.

*Prereq.: Psychol. 230; students in Phys. Ed., Phys. Ed. 232 or equiv.*

A laboratory field experience course introducing topics, problems, and skills common to prospective secondary school teachers.

**442 Creative Dramatics U 3**

Su, A, W, Sp. 3 cl. and lab.

*Prereq.: Psychol. 230 or equiv.*

Philosophy, materials, methods, and evaluation of dramatic improvisation in developing creative artistic expression and problem solving.

**460 Elementary Education: Child Guidance U 4**

(515) Su, A, W, Sp. 4 cl., 1 lab.

*Prereq.: Psychol. 230.*

*Not open in Su. to elementary majors who lack teaching experience.*

*Lab. time is spent in observation-participation in an elementary school classroom.*

To develop an understanding of child growth and development principles in relation to instruction.

**461 Elementary Education: Conceptions of Teaching U 3**

(514) Su, A, W, Sp. 2 1½-hr. cl.

*Prereq.: 460 and 5 cr. hrs. from the following: Soc. 230, Anthro. 261, Music 270 and 271, Fine Arts 290, Geog. 240.*

*Not open in Su. to elementary majors without teaching experience.*

Designed to acquaint students with certain aspects of elementary school program which cut across separate subject areas, and to acquaint students with certain teaching behaviors.

**467 Introduction to Children's Literature U 3**

(521) Su, A, W, Sp. 3 cl.

*Prereq. or concur.: 460.*

Study of literature for children with emphasis on standards for selecting materials with reference to the inter-properate activities.

**501 Kindergarten and Pre-School Teaching U 3**

(509) Su, A, W, Sp. 2 1½-hr. cl.

*Prereq.: 460 or permission of instructor.*

Recent development in the education of young children and its influence on the selection and guidance of appropriate activities.

**502 Elementary Education: Arithmetic U 3**

(510) Su, A, W, Sp.

*Prereq.: 461 and Math. 105.*

A study of the methods and materials used in arithmetic instruction; includes development of functional relationships with other curriculum areas, diagnostic procedures, and remedial work.

a. 3 cl.

b. 2 1½-hr. cl. and 1 2-hr. lab.

**507 Elementary Education: The Language Arts U 3**

(516) Su, A, W, Sp. 2 2-hr. cl.

*Prereq.: 460, 461, 467, and 3rd yr. standing.*

This course gives particular consideration to the teaching of language arts, including listening, oral, and written communications.

**508 Elementary Education: The Social Studies U 4**

(517) Su, A, W, Sp. 2 2-hr. cl. and 1 lab.

*Prereq.: 461 and Ed. 3rd yr. standing. 513 should be scheduled concur. on the same day of the week and at consecutive morning hours just prior to student teaching.*

*Not open in Su. to elementary majors who lack teaching experience.*

*Lab time is spent in participation in an elementary school.*

*Students may not schedule more than 20 cr. hrs. while taking this course.*

This course follows the sequential arrangement of the elementary education curriculum, placing particular emphasis upon the social studies in the elementary school program.

**511 Elementary Education: Science U 4**

(528) Su, A, W, Sp. 1 2-hr. cl., 2 2-hr. labs.

*Prereq.: 460, 461, 467, and 15 cr. hrs. science (the University Basic Education Requirement in Science).*

Consideration is given to the role of science in childhood education and to the study of content, methods, materials, and equipment appropriate for this program.

**513 Elementary Education: Reading U 4**

Su, A, W, Sp. 2 2-hr. cl., and 1 lab.

*Prereq.: 507. 508 should be scheduled concur. on the same day of the week and at consecutive morning hours just prior to student teaching.*

*Not open in Su. to elementary majors who lack teaching experience.*

*Lab time is spent in participation in an elementary school.*

*Students may not schedule more than 20 cr. hrs. while taking this course.*

A study of various methods and materials used in the teaching of reading in the elementary school today.

**520 Teaching Typewriting and Office Practice U 2**

A. 2 cl.

*Prereq.: 207 or equiv., 435 and 4th yr. standing.*

Objectives, methods, classroom procedures, and materials for teaching typewriting and clerical practice.

**521 Teaching Shorthand and Transcription U 2**

A. 2 cl.

*Prereq.: 209 or equiv., 435 and 4th yr. standing.*

Objectives, methods, classroom procedures, materials, and evaluation for teaching shorthand, transcription, and business English.

**523 Teaching Bookkeeping and Office Machines U 3**

(543) W. 3 cl.

*Prereq.: Acc. 221 and senior standing.*

The objectives, methods, classroom procedures, and materials for teaching bookkeeping and accounting, office machines, and business arithmetic.

**524 Methods of Teaching Basic Business Subjects U 3**

(544) A. 3 cl.

*Prereq.: 435, 4th yr. standing, and 25 cr. hrs. in Geog., Econ., and Bus. Org.*

Objectives, methods, classroom procedures, and materials for teaching general business, business law, consumer economics, and business organization in the high school.

**526 Teaching of Social Studies I U 4**

(677) Su, A, W, Sp. 2 2-hr. cl.

*Prereq.: 435 and Hist. 104 or 123.*

Illustrative material will be drawn primarily from history with some attention to other social studies.

**527 The Teaching of the Social Studies II U 4**

W, Sp. 2 2-hr. cl.

*Prereq.: 526.*

Continuation of 526. Designed to lead into student teaching with primary consideration given to teaching methodology and recent trends in social studies education.

**529 Methods of Teaching Distributive Education U 3**

(780) Su. 3 cl.

*Prereq.: 435.*

The organization and preparation of teaching plans for distributive education classes; analysis of current on-the-job training methods in business establishments.

**532 The Teaching of Industrial Arts I U 3**

(561) A. 1 2½-hr. cl.

*Prereq.: 435 and 3rd yr. standing.*

A critical study of objectives, methods of presentation, evaluation class and laboratory procedures, and professional problems.

**533 The Teaching of Industrial Arts II U 3**

(562) W. 1 2½-hr. cl.

*Prereq.: 532 and 3rd yr. standing.*

Examinations and evaluation textbooks, industrial publications, and audio-visual materials suitable for the various grade levels; research and development; and special consideration for exceptional pupils.

**534 The Teaching of Industrial Arts III U 3**

(563) Sp. 1 2½-hr. cl.

*Prereq.: 532 and 3rd yr. standing.*

Problem design and presentation; planning secondary school courses in drawing and the graphic arts; methods of student evaluation; and correlation with other subject fields; industrial practice.

**540 The Teaching of Modern Foreign Language I U 4**

(688) A, W, Sp. 2 2-hr. cl.

*Prereq. or concur.: 435.*

Practice in the use and preparation of teaching materials, tapes, discs, and other types of audio-visual aids.

a. W, Sp. French

b. A, W. Spanish

c. A. German

**546 Teaching Mathematics in Secondary Schools I U 4**

(659) Su, A, W, Sp. 4 cl.

*Prereq.: 435 and 20 cr. hrs. in Math.*

Mathematical concepts, objectives, and classroom procedures appropriate for secondary schools; selection, preparation, and use of teaching materials including lesson plans, study guides, textbooks and multisensory aids.

**551 Science in Secondary Schools U 4**

(604) Su, A, W, Sp. 4 cl.

*Prereq.: 435, Psychol. 230, and a major or minor in Phys., Biol., or Earth Science; admission to professional standing.*

Objectives, problems and procedures, preparing teaching plans, use of demonstrations, experiments, and projects, science curriculum and evaluation, instruments and procedures, texts and reference materials.

**556 The Teaching of Speech in Secondary Schools U 4**

(627) Su, A, Sp. 4 cl.

*Prereq.: 435 and Speech 205, 280, 305.*

The relationship of speech to the total school program with special emphasis on fundamental processes and forensic activities.

**560 Teaching Literature in Secondary Schools U 4**

(670) Su, A, W, Sp. 4 cl.

*Prereq.: 435, 561, and 10 cr. hrs. in Engl. courses numbered 200 or higher. Students who declare Engl. or a first major must complete both Ed. 560 and Ed. 561 prior to student teaching in Engl. Students who declare Engl. as a second major or as a minor must complete Ed. 561 prior to student teaching in Engl.*

The objectives of the literature program and techniques for developing appreciation and improving skills in the reading of various types of prose and poetry.

**561 Teaching Grammar and Composition in Secondary Schools U 4**

(671) Su, A, W, Sp. 4 cl.

*Prereq.: 435 and at least 10 cr. hrs. in Engl. courses numbered 200 or higher. Students who declare Engl. as a first major must complete both Ed. 560 and Ed. 561 prior to student teaching in Engl. Students who declare Engl. as a second major or as a minor must complete Ed. 561 prior to student teaching in Engl.*

The role of grammar and linguistics in the English program and techniques for the teaching of oral and written expression in high school.

**575 Vocational Trade Industrial and Technical Teaching U 3-6**

A, W, Sp. Cl. hrs. arr.

*Prereq.: Temporary vocational teaching certificate in a trade or industrial subject, or eligibility for such certificate, and permission of instructor.**Repeatable to a maximum of 18 cr. hrs.*

A course planned to provide teaching methods and techniques and vocational course organization.



**585 Elementary Education:  
Student Teaching**(518) *Prereq.: Ed. 4th yr. standing.**For additional information, see College of Education section.*

Observation, participation, and responsible teaching in a public school in the greater Columbus area. Individual and group conference or seminars. (Maximum transfer credit accepted is 6 hrs.)

**585.10 Standard Elementary Student Teaching** U 9-15  
A, W, Sp.

For students in the regular elementary education degree program. All students must enroll for 15 hours unless they have transfer credit for part of this requirement.

**585.11 In-Service Student Teaching** U 6  
A, W, Sp.

For approved students with 3 or more years of successful teaching experience.

**585.12 Post Degree Elementary Student Teaching** U 12-15  
A, W, Sp.

For students in the program for graduates with Bachelor of Arts or comparable degrees.

**586 Elementary School Student Teaching in Special Fields** U 3-7(580) *Prereq.: Ed. 3rd yr. standing.*

**586.03 Fine Arts**  
A, W, Sp.

**586.07 Physical Education (Men)**  
A, W, Sp.

**586.08 Physical Education (Women)**  
A, W, Sp.

**586.14 Instrumental Music**  
A, W, Sp.

**586.15 Vocal Music**  
A, W, Sp.

**586.45 Foreign Languages**  
A, W, Sp.

**587 Student Teaching in Secondary Schools**(536) *Prereq.: Ed. 4th yr. standing.**A minimum of 12 cr. hrs. is required.**For additional information, see College of Education section.*

Observation, participation, and responsible teaching in a public school in the greater Columbus area; individual and group conferences or seminars.

The individual subject area is designated by a separate section number which should be used in enrolling. Students desiring teaching in more than one area should indicate accurately both section numbers and hours in each.

**587.03 Fine Arts** U 3-15  
A, W, Sp.

**587.07 Physical Education (Men)** U 3-15  
A, W, Sp.

**587.08 Physical Education (Women)** U 3-15  
A, W, Sp.

**587.09 Speech Education** U 3-15  
A, W, Sp.

**587.14 Instrumental Music** U 3-8  
A, W, Sp.

Continuation of 586.14.

**587.15 Vocal Music** U 3-8  
A, W, Sp.

Continuation of 586.15.

**587.21 Industrial Arts** U 3-15  
A, W, Sp.

**587.22 Trade and Industrial Education** U 3-15  
A, Sp.

**587.23 Business Education** U 3-15  
A, W, Sp.

**587.24 Health Education** U 3-15  
A, W, Sp.

**587.25 English** U 3-15  
A, W, Sp.

**587.26 Mathematics** U 3-15  
A, W, Sp.

**587.27 Science** U 3-15  
A, W, Sp.

**587.28 Social Studies** U 3-15  
A, W, Sp.

**587.29 Distributive Education** U 3-15  
A, W, Sp.

**587.45 Foreign Languages** U 3-15  
A, W, Sp.

a. French  
b. Spanish  
c. German  
d. Russian  
e. Latin

**587.53 Dance Education** U 3-15  
A, W, Sp.

**588 Student Teaching in Special Fields** U 3-15(537) *Prereq.: Ed. 4th yr. standing.**A minimum of 12 cr. hrs. in student teaching is required.**For additional information, see College of Education section.*

**588.04 Speech and Hearing Therapy**  
A, W, Sp.

**588.09 Radio-Speech Education**  
A, W, Sp.

**588.30 Dental Hygiene Education**  
A, W, Sp.

**588.32 Blind and Partially Seeing**  
A, W, Sp.

**588.54 Mental Retardation**  
A, W, Sp.

**601 Business and Office Education Programs** U G 2

Sp. 2 cl.

*Prereq.: 520 or 521 or 523 or equiv.*

Organization, implementation, evaluation, and improvement of vocational office education programs on the secondary school level; required of all business education majors. *Wells.*

**602 Cooperative Office Education** U G 3

Su. 3 cl.

*Prereq.: 520 or 521 or 523 or equiv.*

A study of new approaches to organization, operation, and supervision of the Cooperative Office Education Program and the understanding and evaluation of the recent thrust in vocational education and work-study programs. *Jennings.*

**605 Curriculum Content for Distributive Occupational Subjects U G 3**(781) *Su. 3 cl.**Prereq.: 529.*

Securing, evaluating, and organizing instructional material and experiences for distributive cooperative education and adult extension courses.

**606 Operation of Distributive Education Programs U G 3**(782) *Su. 1 2½-hr. cl.**Prereq.: 435.*

A practical study of the development and operation of a distributive education program.

**608† Practicum in Distributive Education U G 2-5***A, W, Sp.**May be repeated once.*

*Student is not permitted to enroll for any other courses during the qtr.*

Work in a retail, wholesale, or service occupation previously approved by the student's adviser to be taken by undergraduate students after the sixth quarter of work. Graduate students will be placed in a high school or post-secondary institution previously approved by the student's adviser.

**610 History of Practical Arts and Vocational Education U G 3**(641) *A. 3 cl.**Prereq.: Ed. or Agric. 3rd yr. standing.*

History of those vocational and non-vocational phases of agriculture, business, industry, and homemaking which concern education. *Luz.*

**612 Linguistic Materials for High School Teachers U G 3**(663) *A, W, Sp. 1 2½-hr. cl.*

*Prereq.: 564, 10 cr. hrs. in Ed. courses numbered 300 or higher plus 10 cr. hrs. in Engl. courses numbered 300 or higher.*

A study of traditional and modern linguistic systems of grammar and their bearing on the work of the English teacher. *Bateman and Zidonis.*

**613 Literature for Adolescents U G 3**(669) *Su, A, W, Sp. 2 1½-hr. cl.*

*Prereq.: 561, 10 cr. hrs. in Ed. courses numbered 300 or higher plus 10 cr. hrs. in Engl. courses numbered 300 or higher.*

Fiction and nonfiction suitable for collateral reading of pupils in junior and senior high school; experience in book-reviewing, story-telling, oral interpretation, and discussion. *Stewart and Staff.*

**614 The Supervision of Journalism in Secondary Schools U G 3**(674) *Su, W. 1 cl.**Prereq.: 435 or equiv. and Jour. 204.*

*Not open for graduate credit to Jour. majors.*

For Journalism teachers in secondary schools and advisers; covers editorial, advertising, circulation, mechanical production, and publishing phases of school newspapers, magazines, and annuals.

**616 The Teaching of Modern Foreign Language II U G 4**(692) *A, W. 4 cl.*

*Prereq.: 435 and French 105 and 421, Span. 105 and 421, or Ger. 203 and 15 additional cr. hrs. in Ger., or Russ. 104.*

Study of the preparation and use of new instructional materials; evaluation and testing; practical problems in the teaching of vocabulary, pronunciation, grammar, and reading. *Allen, Otto, and Staff.*

- a. *A, W. French*
- b. *Su, A, W. Spanish*
- c. *W. German*
- d. *W. Russian*

**617 The Teaching of Foreign Languages in the Elementary School U G 4**(603) *Su, A.*

*Prereq.: 15 cr. hrs. of Ed. and at least one 500-level course in a foreign language.*

Skill development in teaching of spoken and written foreign languages on the elementary school level; construction and use of suitable materials. *Otto.*

**618 The Teaching of Latin U G 3**(694) *Sp. 3 cl.*

*Prereq. or concur.: 435, Latin 201, 202, and an additional 6 cr. hrs. in Latin.*

Content of this course includes: values, teachers' equipment, objectives, and methods; classroom procedures; lectures, and assigned readings. *Davis.*

**621 Teaching Mathematics in Secondary Schools II U G 4**(660) *Su, A, W, Sp. 4 cl.*

*Prereq.: 546 and 25 cr. hrs. in Math.*

Selected problems in curriculum; evaluation, materials of instruction, and the teaching of specific topics in arithmetic, algebra, and geometry. *Lazar.*

**622 Laboratory Methods and Materials in School Mathematics U G 3**(689) *A. 1 2½-hr. cl.*

*Prereq.: 621 or equiv. and a major or minor in Math.*

The laboratory teaching of mathematics; experience in the preparation and use of teaching materials. *Osborne.*

**624 Social Education U G 3***Su, A, W, Sp. 1 2½-hr. cl.*

*Prereq.: 3rd yr. standing and 435 or 461 or permission of instructor.*

Analyses of social structures and processes in classroom grouping arrangements; teacher social roles, school traditions, ceremonies, clubs, and athletics. *Jewett.*

**625 Practicum in Biological Science for Teachers U G 3**(605) *Su, A, W, Sp. 3 2-hr. cl.*

*Prereq.: 551, 30 cr. hrs. in Biol. Sc. and 15 cr. hrs. in Chem.*

Use and design of apparatus, demonstrations, and experiments; collection and preservation of biological materials; the role of the living organism in the classroom. *Howe.*



**626 Practicum in the Earth Sciences for Teachers U G 3**

(606) A. 3 2-hr. labs.

Prereq.: 551 and 30 cr. hrs. in Earth Science courses.

Use of the laboratory and local field environment in teaching earth science; materials, demonstrations, and experimental methods. *Mayer*.

**627 Practicum in General and Physical Science for Teachers U G 3**

(681) Su, A, W, Sp. 3 2-hr. cl.

Prereq.: 551 and 30 cr. hrs. in major of General or Physical Science.

Use and design of apparatus, demonstrations, and experiments for general science, chemistry, and physics, with special emphasis on modern secondary school instructional materials in the sciences. *Schlessinger* and *Voelker*.

**631 Teaching Dramatics and Oral Interpretation in Secondary Schools U G 4**

(628) Su, W. 4 cl.

Prereq.: 435 and Speech 205, 221, 270.

The organization and conduct of dramatic classes and extra dramatic activities; resource planning for oral readings, choral speaking, radio-television programming, and theatrical productions. *Lewis*.

**632 The History of Western Education U G 4**

Su, A, W, Sp. 4 cl.

Development of educational systems in the Western world since ancient times; education in relation to other social institutions; continuity of its evolution. *Mehl* and *Staff*.

**636 Historical Foundations of American Education U G 4**

A, W, Sp. 4 cl.

Development of education in the United States since colonial times; major emphasis on American education since 1830, including twentieth century developments. *Mehl*.

**637 Philosophy of Education U G 3**

(607) A, W, Sp. 3 cl.

Prereq.: 4th yr. standing.

A study of various philosophies of education and their influences on methods, choice of subject matter, and the administration of the public school.

**649 Vocational Trade, Industrial and Technical Education for Out-of-School Youth and Adults U G 3**

(695) A. 1 2½-hr. cl.

Prereq.: 575 or equiv. and permission of instructor. Teaching or supervising experience required for graduate credit.

Philosophy, facilities, subject matter, instructional methods, teacher education, supervision, coordination; records and reports, types of programs and relationships. *Reese*.

**652 Introduction to the Education of Mentally Retarded Children U G 3**

(666) Su, A, W. 1 2½-hr. cl.

Prereq.: Psychol. 570.

Study of causal factors, evaluations, learning potential, and general characteristics of the retarded child. *Johnson*.

**653 Educational Planning for Mentally Retarded Children and Youth U G 3**

(719) Su, W.

Prereq.: 652.

A basic course for teachers and administrators which deals with curriculum goals and related educational planning for mentally retarded children and youth. *Okada*.

**654 Practicum in Educational Planning for Mentally Retarded Children: Communicative Arts U G 3**

(718) Su, W. 1 2½-hr. cl.

Prereq.: 652 and 653.

A practicum on content, educational techniques, and methodology of teaching the communicative arts to the mentally retarded. *Okada*.

**655 Practicum in Educational Planning for Mentally Retarded Children: Arithmetic U G 3**

(719) Su, A. 1 2½-hr. cl.

Prereq.: 653.

A practicum on content, educational techniques, and methodology of teaching arithmetic to the mentally retarded. *Okada*.

**656 Practicum in Educational Planning for Mentally Retarded Children: Natural and Social Science U G 3**

(720) Su, Sp. 1 2½-hr. cl.

Prereq.: 653.

A practicum on content, educational techniques, and methodology of teaching the natural and social sciences for the mentally retarded. *Okada*.

**657 Curriculum Planning for Occupational Training of the Mentally Retarded U G 3**

Su, Sp. 3 cl.

Prereq.: 653.

A curriculum planning course studying the purpose, organization and administration of sheltered workshops and other work experience programs for the mentally retarded. *Cavin*.

**659 Techniques of Teaching Speech to the Deaf U G 3**

(611) A. 1 2½-hr. cl.

Study and practice in developing speech in the deaf.

**660 Techniques of Developing Language in the Deaf U G 3**

(650) A. 1 2½-hr. cl.

Prereq.: Psychol. 570 and Speech 644.

A study of the techniques and procedures for developing elementary vocabulary and syntax for deaf children.

**661 Techniques of Developing Advanced Language in the Deaf U G 3**

(651) W. 1 2½-hr. cl.

Prereq.: 660.

Study of techniques and procedures for developing advanced vocabulary and syntax with deaf students.

**662 Methods in School Speech and Hearing Therapy U G 3**

(612) A, Sp. 2 2-hr. cl.

Prereq.: 289.04, 435, or 461 or equiv., Speech 632 and 656.

Organizing speech and hearing therapy programs in schools; state programs; professional relationships; procedures and materials for screening, scheduling, lesson planning, and evaluation. *Becher.*

**663 Behavioral Aspects of Language Disabilities U G 3**

(613) W. 2 2-hr. cl.

Prereq. or concur.: 435 or 507, and Speech 755.

Classroom and therapy interrelationships; consideration of aphasia, voice problems, deafness, and multiple handicaps; the use of records, reports, home visitations, parent conferences, and essential equipment. *Becher.*

**665 Instructional Programs for Exceptional Children U G 3**

(667) Su, W. 1 2½-hr. cl.

Prereq.: 10 cr. hrs. in Psychol.

Problems, evaluation, and adjustments related to the participation of exceptional children in the regular classroom, grades one through twelve. *Bireley.*

**666 Principles and Methods of Teaching Braille: Beginning U G 3**

(608) Su, A. 3 cl.

Theory and practice in learning and teaching braille reading and writing, including the alphabet, numerals, twenty-six one-cell whole-word signs and seventeen dot-five compound contractions. *Hott.*

**667 Principles and Methods of Teaching Braille: Advanced U G 3**

(609) Su, W. 1 2½-hr. cl.

Prereq.: 666.

Theory and practice in learning and teaching braille reading and writing with emphasis on contractions, punctuation, and manuscript writing; preparation for certification in braille writing. *Hott.*

**668 Principles and Methods in the Education of Partially Seeing Children U G 3**

(619) Su, W. 1 2½-hr. cl.

Prereq.: 717.

Identification of types and patterns of visual impairment; educational placement, facilities and programs for the partially seeing; impact of visual environment on sight; use of special equipment for partial seeing. *Hunt.*

**669 Practicum in Educational Planning for Partially Seeing Children U G 3**

(644) Su, Sp. 1 2½-hr. cl.

Prereq.: 668.

Adaptations of curriculum for the partially seeing—methods and techniques; planning educational experiences; counseling and guidance for the partially seeing. Observation and participation required. *Hunt.*

**672 Introduction to Adult Education U G 3**

(770) Su, A, W, Sp. 1 2½-hr. cl.

Prereq.: 4th yr. standing, for Ed. majors, 435 or 461.

The nature, extent, and significance of adult education; history and types of adult education; theoretical issues; adult learning and methodology; present trends and future developments. *Ohliger.*

**673 Parent Education U G 3**

(771) Su, W. 1 2½-hr. cl.

Prereq.: 4th yr. standing, for Ed. majors, 461 or 435.

Nature, extent, and significance of the parent education movement; home and school relationships; methods and resources; training professional and lay leaders; local and state programs. *Dowling.*

**675 Audio-Visual Materials of Instruction U G 3**

(602) Su, A, W, Sp. 2 2-hr. cl.

Prereq.: 4th yr. standing.

The contribution of audio-visual materials to educational objectives emphasizing the classroom use of such materials, utilization practices, basic sources of information, selection, and evaluation of field trips, films, records, etc. *Eboch and Trzebiatowski.*

**677 Radio and Television in Education U G 3**

(601) A, Sp. 2 2-hr. cl.

Prereq.: 4th yr. standing.

The varied types of educational broadcasting in relation to objectives, planning, production, utilization, and evaluation. *Tyler.*

**690 Practicum in Problems of Public Education U G 3**

(649) Su, A, W, Sp. 3 cl.

Prereq.: 461 or 435 or equiv.

Repeatable to a maximum of 9 cr. hrs.

Open to experienced teachers and administrators; groups are organized around specific problems; requests must be received by department chairman in time to allow for planning.

**691 Field Laboratory in Conservation Education U G 6-8**

(682) Su.

Prereq.: 461 or 435 or permission of instructor.

Courses on conservation education; cooperatively staffed by three state universities of Ohio; descriptive leaflet available from Departments of Education at Kent, Miami, Ohio, and Ohio State University.

**692 Education Workshops U G 4, 6, or 8**

(799) Su. 4 cr. hrs. for 3-wk. workshops.

6 cr. hrs. for 4½-wk. workshops.

8 cr. hrs. for 6-wk. workshops.

Prereq.: Teaching experience and permission of workshop director.

Repeatable to a maximum of 16 cr. hrs.

Intensive study of a problem common to the participants for the purpose of developing sound principles and practices relating to it.

692.10 Elementary Education

692.21 Industrial Arts

692.23 Business Education

692.28 Social Studies

692.29 Distributive Education

692.33 Adult Education

692.34 Guidance

692.43 Modern Media and Materials

692.44 Educational Administration

692.47 Exceptional Children

692.49 Curriculum and Instruction



**693 Individual Studies in Education U G 1-4**(600) *Su, A, W, Sp.**Prereq.: 435 or 460 and permission of instructor.*

693.05 Able Student Program

693.09 Speech Education

693.10 Elementary Education

693.21 Industrial Arts Education

693.22 Trade and Industrial Education

693.23 Business Education

693.25 Teaching of English

693.26 Teaching of Mathematics

693.27 Teaching of Sciences

693.28 Teaching of Social Studies

693.29 Distributive Education

693.33 Adult Education

693.34 Guidance

693.35 Higher Education

693.36 Teacher Education

693.40 History of Education and Comparative Education

693.41 Philosophy of Education

693.43 Radio and Television Education

693.44 Educational Administration

693.45 Teaching of Foreign Languages

693.46 Audio-Visual Materials of Instruction

693.47 Exceptional Children

693.48 Educational Research

693.49 Curriculum and Instruction

**712 Evolution of Instruction and Guidance of the Deaf U G 3**(617) *Sp. 1 2½-hr. cl.**Prereq.: Psychol. 570.*

Evolution of the oral and manual approaches of instruction of the deaf and their implication for the life adjustment problems of the deaf.

**713 Teaching Reading and Arithmetic to the Deaf U G 4**(734) *W. 4 cl.**Prereq.: 660.*

Developing skills in reading arithmetic in the deaf.

**714 Teaching Social Studies and Science to the Deaf U G 3**(735) *Sp. 3 cl.**Prereq.: 713.*

Teaching skills in academic subjects to the deaf on the intermediate and high school levels.

**715 Education of Multihandicapped Children U G 3**(736) *Su, Sp. 1 2½-hr. cl.**Prereq.: Psychol. 570.*

Differential diagnosis, classification, educational placement, and adjustment of multihandicapped children. *Okada.*

**717 Educational Implications of Visual Impairments U G 3**(730) *Su, A. 1 2½-hr. cl.**Prereq. or concur.: Psychol. 570.*

A course for school personnel, including a survey of the structure, function, and hygiene of the eyes with emphasis on educational implications of visual disabilities of blind and partially seeing children. *Hunt.*

**718 Education of the Emotionally and Socially Maladjusted U G 3**(766) *Su, Sp. 1 2½-hr. cl.**Prereq.: Psychol. 570.*

Critical study of principles and methods in the adjustment of behavior problem children.

**719 Theory and Practice in the Education of Blind Children U G 3**(732) *Su, Sp. 1 2½-hr. cl.**Prereq.: 717.*

Current theories and techniques in the education of blind children; adapting general curriculum, specialized content, materials, and equipment for the blind child. *Hunt.*

**722 The School in American Culture U G 3***A. 1 cl., 1 3-hr. lab. Field trips arr.**Prereq.: 15 cr. hrs. of professional study in Ed.**Open only to new international students.*

An orientation to the contemporary American school by direct observation correlated with study of major historical forces affecting education. *Sutton.*

**723 Comparative Education U G 3**(777) *A, Sp. 1 2½-hr. cl.**Prereq.: 632 or 636.*

Social and cultural factors influencing the differential development of educational institutions and organization. *Sanders and Sutton.*

**724 Historical and Cultural Factors in the Evolution of Educational Systems U G 3**(778) *Su, W. 1 2½-hr. cl.**Prereq.: 632 or 636.*

Social and historical factors affecting stability and effectiveness of educational institutions and organization in countries where programs of universal education are of recent origin. *Sutton.*

**725 Education and National Development U G 3***W. 1 3-hr. cl.*

Roles of education in national economics and social development; includes strategies for educational development and introduction to educational planning. *Sanders.*

**732 Corrective Reading U G 3***Su, W. 3 cl.**Prereq.: 435 or 513 and Psych. 230.*

Diagnostic techniques and instructional methods and materials useful to the elementary and secondary classroom teacher in helping individuals and small groups of problem readers. *Huelman.*

**768 Directing Student Teachers U G 3***A, W. 1 2½-hr. cl.**Prereq.: Bachelor's degree, teacher's certificate, and teaching experience.*

Principles and techniques for directing the laboratory experiences of student teachers and other teacher education students. *Andrews.*

**800 Principles of Business Education G 3**

(722) A. 1 2½-hr. cl.

*Open only to graduate students majoring in business ed., distributive ed., and vocational ed.*

Meaning, purpose, and scope of the business education program. Analysis of principles and fundamental issues. *Jennings.*

**801 Organization and Teaching of Office Practice G 3**

(723) Su, Sp. 3 cl.

*Prereq.: Bus. Org. 301 or equiv.*

The purposes, content, organization, materials, and methods of evaluation for an office practice course; office practice as a part of an intensive vocational curriculum. *Wells.*

**802 Administration and Supervision of Business Education G 3**

(724) Su. 1 2½-hr. cl.

*Prereq.: Graduate status in business or vocational ed.*

Administrative problems in business education related to program, facilities, placement and follow-up of graduates, public relations, and federal-state reimbursement. *Jennings.*

**803† Improvement of Instruction in Basic Business Subjects G 3**

(725) Su. 3 cl.

*Prereq.: 524 or equiv.*

A study of objectives, methods, materials, and methods of evaluation for courses such as general business, consumer education, and business law.

**804† Improvement of Instruction in Bookkeeping and Data Processing G 2**

(726) A.

*Prereq.: 523 or equiv.*

Evaluation of the content, materials, and methods of teaching bookkeeping, accounting, and data processing on the secondary and post-secondary school levels.

**805 Improvement of Instruction in Secretarial Subjects G 2**

(728) Su, W. 2 cl.

*Prereq.: 520 and 521 or equiv.*

Teaching procedures basic to the development of vocational proficiency in typewriting, shorthand, and transcription; available instructional materials, evaluation, standards of achievement. *Wells.*

**807 Survey of Vocational Education G 3**

(717) Su, A. 1 2½-hr. cl.

*Prereq.: 435 or equiv.*

*Open to vocational educators, school administrators, industrial arts students, and other graduate students who desire information about vocational education.*

A survey of vocational education, vocational guidance, and industrial arts.

**811 Science in Elementary Education G 3**

(649) Su, A, Sp. 1 2½-hr. cl.

*Prereq.: 585 or 587 or 3 yrs. of teaching experience.*

Problems of elementary school science instruction with emphasis on pertinent literature and classroom implementation of current developments in science curriculum and methodology. *Languis.*

**812 Mathematics in Elementary Schools G 3**

(654) Su, A. 1 2½-hr. cl.

*Prereq.: 585 or 587 or 3 yrs. teaching experience.*

Applications of research and theory to improve children's competence in computation and problem solving; organization of instructional programs and contemporary instructional questions are considered. *Harding and Stull.*

**813 Language Arts in the Elementary School G 3**

(656) Su, W. 1 2½-hr. cl.

*Prereq.: 585 or 587 or 3 yrs. teaching experience.*

Problems, research, and current methods of teaching the four major areas of the language arts in the elementary school: listening, speaking, reading, writing. *Burns and King.*

**814 Social Studies in the Elementary School G 3**

(657) Su, Sp. 1 2½-hr. cl.

*Prereq.: 585 or 587 or 3 yrs. teaching experience.*

The educational values of social studies, reasons for, and ways and means of integrating the social sciences with emphasis upon program innovations and research. *Tomlinson.*

**815 Guidance Problems in the Elementary School G 3**

(661) Su, W. 1 2½-hr. cl.

*Prereq.: 585 or 587.*

Selected problems which the elementary teacher faces in providing individual, small-group, and large-group guidance. *Tomlinson.*

**817 Advanced Course in Children's Literature G 3**

(741) Su, A, Sp. 1 2½-hr. cl.

*Prereq.: 467 or 813.*

An evaluation of the changing role and increased importance of literature in the education of children and youth today. *Huck and Koate.*

**818 Foundations of Elementary Education G 3**

(747) Su, A, Sp. 1 2½-hr. cl.

Utilization of research in the basic sciences in developing background and understanding of present trends in elementary education; critical examination of current theories. *Frazier and Galloway.*

**819 The Changing American Elementary School G 3**

(748) Su, W, Sp. 1 2½-hr. cl.

*Prereq.: 585 or 587 or teaching experience.*

Involves investigation of objectives, issues, and curriculum organization of the modern elementary school program. *Burr.*

**820 Evaluation in Elementary Schools G 3**

(749) Su, Sp. 1 2½-hr. cl.

*Prereq.: 585 or 587 or teaching experience.*

Appraisal of materials and methods in terms of educational aims and research findings; consideration of instruments and procedures for comparing achievements with established objectives. *Harding.*



**821 School Problems in Child Development G 3**

(753) Su, W, Sp. 1 2½-hr. cl.

An advanced course based upon research in education and related fields which aids the teacher in guiding developmental activities of children in the elementary school. *Galloway, Loomis, and Strom.*

**823 Creative Experiences in the Elementary School Curriculum G 3**

Su, A. 3 cl.

Study of the nature of creativity and aesthetics as related to the elementary school curriculum. *Koste.*

**824 Designing School Programs for Children Age Two to Six G 3**

Su, W. 3 cl.

A study of the characteristics and needs of children two to six years of age as they are related to the development of educational programs. *Bozeman and Miller.*

**827 Advanced Study in the Teaching of Developmental Reading G 3**

Su, A. 1 2½-hr. cl.

Designed to provide experienced teachers the opportunity to extend and up date their knowledge of the reading process and the principles underlying effective reading instruction. *Kerber and King.*

**828 Trends and Issues in Teaching Reading in the Elementary School G 3**

(731) Su, W, Sp. 1 2½-hr. cl.

Prereq.: 813 or permission of instructor.

Designed for experienced teachers and curriculum workers; current developments, trends, and issues critically analyzed according to available research evidence. *Burns, Huck, and King.*

**829 Problems in Elementary School Curriculum and Supervision G 3**

(864) Su, Sp. 1 2½-hr. cl.

Prereq.: 819 and 861.

An analysis of the programs and practices involved in facing major curriculum problems in the elementary schools; supervision and curriculum will be synthesized. *Frazier.*

**832 Industrial Arts in the Elementary School G 3**

(655) W. 3 cl.

Prereq.: 120 or 243 or equiv.

Selection, development, and evaluation of typical experience units in both classrooms and practical arts laboratory situations at all levels of the elementary schools. *Towers.*

**833 Industrial Arts Curriculum Planning G 3**

(714) Su. 1 2½-hr. cl.

Prereq.: 587 or equiv.

Review of resource reports, general and special criterion developments, formulation of curriculum guides, and laboratory manuals of instruction. *Towers.*

**834 Planning Industrial Arts Facilities G 3**

(715) Su, A. 1 2½-hr. cl.

Principles of industrial arts and technical laboratory planning including equipment selection for all school levels and meeting all curriculum requirements. *Ray.*

**835 Organization and Administration of Industrial Education G 3**

(815) Su, W. 1 2½-hr. cl.

Prereq.: 836.

International and historic background curriculum resources and development, physical organization, administrative organization, supervisory operation, and professional policies. *Luz.*

**836 Practicum in Industrial Arts Education G 3-5**

(856) Su, Sp. 3 cl.

Prereq.: 587.

Derivation of doctrine, formulation, and evaluation of basic programs, curriculum development, organizational implementation, leadership problems, and professional progress, both here and abroad. *Towers.*

**837 Research in the Laboratory of Industries G 3**

(866) Su, Sp. 3 cl.

Prereq.: 833 or 834, teaching experience in Indust. Arts or Vocational Indust. Ed., and permission of instructor.

Individual or group studies on a conference and laboratory basis, with the publication of either a professional or technical bulletin as a goal. *Ray.*

**839 Applied Linguistics in the Teaching of Foreign Languages G 3**

(779) W, Sp. 3 cl.

Prereq.: 15 cr. hrs. in Ed. and at least one French or Span. course on the 600 level.

Analysis of research in Applied Linguistics; construction of drills, laboratory exercises, and tests; lexical items and structural inventory of French or Spanish. *Allen.*

a. W. French

b. Sp. Spanish

**841 The Use of Certain Concepts of Philosophy and Logic in the Teaching of Mathematics G 3**

(761) Su, W. 3 cl.

Prereq. or concur.: 621 or equiv.

A study of the role of physical materials and certain concepts of philosophy and logic in the teaching of arithmetic, algebra, and geometry. *Lazar.*

**842 Number Concepts in School Mathematics G 3**

Su, A. 2 1½-hr. cl.

Prereq.: 841 or permission of instructor.

The concept of number systems from the point of view of a teacher who plans to introduce them to students in grades K-12. *Lazar and Osborne.*

**843 Algebraic Concepts in School Mathematics G 3**

(762) Su, W. 2 1½-hr. cl.

Prereq.: 841 and undergraduate major or minor in Math. or permission of instructor.

Such concepts as algebraic structures, order structures, and relation and function as unifying themes for school mathematics. *Trimble.*

- 844 Geometric Concepts in School Mathematics** G 4  
(840) *Su, Sp. 4 1-hr. or 2 2-hr. cl.*  
*Prereq.: 841 or permission of instructor.*  
The historical and contemporary role of geometry in school mathematics; review of research, analysis of current programs and the teaching of selected concepts. *Crosswhite.*
- 845 Curriculum and Supervision in School Mathematics** G 4  
*Sp. 4 cl. plus observation and participation in selected schools.*  
*Prereq.: 842, 843, 844, or permission of instructor.*  
The role of state and local supervisors in the design, implementation, and supervision of school mathematics programs (K-12) with analysis of contemporary programs and materials of instruction. *Crosswhite and Osborne.*
- 847 Preparation of Handicapped Children for Post-School Adjustment** G 3  
(772) *Su, Sp. 1 2½-hr. cl.*  
*Prereq.: Psychol. 570 or 853 and permission of instructor.*  
Study of the roles of education, guidance, work experience, placement, and follow-up service in helping handicapped children adjust to employment, family, and community life. *Johnson.*
- 848 Organization of Programs for Exceptional Children** G 3  
(849) *Sp. 2 1½-hr. cl.*  
*Prereq.: Permission of instructor.*  
Planning and financing of educational programs for children who are gifted, mentally deficient, blind, partially seeing, deaf, hard of hearing, emotionally disturbed, or who have learning problems or other handicaps. *Cassidy.*
- 849 The Supervision of School Science Programs** G 4  
(706) *Su, Sp. 4 cl.*  
*Prereq.: 551 or equiv. and teaching or supervisory experience.*  
For those concerned with supervision of teacher education programs in science; objectives, curricula, recent trends, classroom management, evaluation of teaching, professional literature. *Schlessinger.*
- 850 Science in the School Curriculum** G 4  
(712) *Su, W. 2 2-hr. cl.*  
*Prereq.: 551 or equiv. and teaching or supervisory experience.*  
Foundations for science curriculum, current developments, planning and evaluation procedures, research. *Howe and Richardson.*
- 851 Science Education in Higher Education** G 4  
*Su. 2 2-hr. cl.*  
*Prereq.: 551 or equiv. and 849 or 850 or equiv.*  
Course and curricula for teacher preparation programs in science, clinical experience including student teaching, facilities, evaluation, and research, and the role of science education centers. *Richardson.*
- 853 Reading in the Secondary School** G 3  
*Su. 3 cl.*  
*Prereq.: Student teaching or permission of instructor.*  
Critical study of objectives, content, and organization of reading programs in secondary schools. *Huelsman.*
- 854 Reading in Its Social Setting** G 3  
*Sp. 3 cl.*  
*Prereq.: Permission of instructor.*  
The influence of culture on the nature, quality, and quantity of reading development; the relationship of reading to language development and mass media. *Dale.*
- 855 Practicum in Reading** G 3  
*Su, W, Sp. 1 cl., lab. arr.*  
*Prereq.: Permission of instructor.*  
Application of research, diagnostic, prognostic, and program development methodology in field settings. *Huck and King.*
- 858 Introduction to Educational Research** G 3  
(710) *Su, A, W, Sp. 1 2½-hr. cl.*  
*Prereq.: 585 or 587 or equiv.*  
*Not open to students with credit for 968.*  
A review of major research strategies and the role these strategies play in educational development, with emphasis upon the conceptualization of educational problems.
- 859 The Junior High School Curriculum** G 3  
(676) *A. 1 2½-hr. cl.*  
*Prereq.: 495 or equiv.*  
A study of the various types of junior high school programs, with special emphasis upon teaching-learning procedures as they apply to the early adolescent years. *Alberty.*
- 860 Fundamentals of Curriculum** G 3  
(701) *Su, A, W, Sp. 1 2½-hr. cl.*  
*Prereq.: 818 or 862.*  
*Not open to students with credit for 868.*  
A beginning course in curriculum designed to serve as an overview of the field of curriculum and instruction: Kindergarten through 12th grade. *Alberty and Klohr.*
- 861 Fundamentals of Supervision** G 3  
(702) *Su, A, W, Sp. 1 2½-hr. cl.*  
*Prereq.: 860.*  
A beginning course in supervision of instruction emphasizing general principles and practices in elementary and secondary schools. *Burr and Frazier.*
- 862 The Role of the School in the Social Order** G 3  
(703) *Su, A, W. 1 2½-hr. cl.*  
*Prereq.: 585 or 587 or equiv.*  
An orientation course for teachers and administrators which deals with the basic purposes of secondary education in relation to major issues and current trends. *Arisman and Frymier.*
- 863 Evaluation in Secondary Schools** G 3  
(708) *Su, A, Sp. 1 2½-hr. cl.*  
*Prereq.: 585 or 587 or equiv.*



Study of techniques of evaluation in secondary schools; attention is given to current evaluation practices with emphasis on procedures appropriate to Ohio schools. *Arisman.*

### 864 Fundamentals of Instruction G 3

(705) Su, A, Sp. 1 2½-hr. cl.

Prereq.: 585 or 587 or equiv.

Survey of instructional theory and related behavioral science disciplines. Emphasis is on application of principles of instructional theory to classroom teaching. *Duncan.*

### 865 Curriculum Theory G 3

(865) W, Sp. 2 1½-hr. cl.

Prereq.: 861 or equiv.

An advanced course in curriculum: Kindergarten through 12th grade. *Klohr.*

### 866 Supervision Theory G 3

(868) Su, Sp. 2 1½-hr. cl.

Prereq.: 861 or equiv.

An advanced course in supervision of instruction: Kindergarten through 12th grade. *Frazier.*

### 867 Educational Experimentation G 2-5

(864) Su. 1 2-hr. lab. conf. arr.

Prereq.: 858 or equiv. and 15 cr. hrs. of graduate work in Ed.

Repeatable to a maximum of 5 cr. hrs.

Analysis of contribution of selected experiments to elementary, secondary, and higher education; design of experimental method for attacking educational problems.

### 868 Laboratory in Curriculum Development in Secondary Schools G 3

(831) Sp. 1 2½-hr. cl.

Prereq.: 862 or equiv.

An advanced course in techniques of curriculum development and organization. Specific problems in curriculum development which are of concern to the students enrolled are studied. *Alberty.*

### 869 Guiding Learning Activities in the Secondary School G 3

(841) Su, W. 1 2½-hr. cl.

Prereq.: 862 and 864.

An advanced course dealing with basic principles and generalized techniques involved in developing, organizing, and evaluating learning activities. *Duncan.*

### 870 Practicum in Curriculum and Supervision G 4

(885) A. 1 cl., lab. arr.

Prereq.: Master's degree and 861.

Not open to students with credit for 868.

A study of the literature and methods of curriculum development and supervision of instruction in a field setting. *Frazier.*

### 871 Practicum in Curriculum and Supervision G 4

(886) W. 1 cl., lab. arr.

Prereq.: Master's degree, 861 and 870.

Continuation of 870. *Frymier.*

### 872 Practicum in Curriculum and Supervision G 4

(887) Sp. 1 cl., lab. arr.

Prereq.: Master's degree, 861 and 871.

Continuation of 871. *Klohr.*

### 873 Problems of Secondary School Supervision and Curriculum Development G 3

(865) Su, A. 1 2½-hr. cl.

Prereq.: 860.

Not open to students with credit for 868.

An advanced course in supervision and curriculum development emphasizing the problem involved in initiating and conducting change in the secondary school curriculum. *Frymier.*

### 874 Introduction to Guidance Services G 3

(750) Su, A, W, Sp. Cl. hrs. arr.

Prereq.: 435.

Background and purposes of guidance services; techniques used in studying the individual; informational services; counseling service; placement and follow-up; developing a guidance program. *Peters and Riccio.*

### 875 Group Processes G 3

(752) Su, A, W, Sp. 1 2½-hr. cl.

Theories, issues, trends, and supervised practice. *Kemp.*

### 876 Organization and Administration of Guidance Services G 3

(754) Su, A, W, Sp. 3 cl.

Prereq.: 874 or equiv.

The selection, organization, and presentation of guidance materials, including analyses of types of organization, methods of initiating a guidance program, and types of in-service programs. *Riccio.*

### 877 Guidance Appraisal Techniques G 3

(755A) A, Sp. 1 2½-hr. cl.

Prereq.: 874.

Basic concepts and techniques in the appraisal of the individual. Non-Standardized Methods. *Kemp.*

### 878 Guidance Appraisal Techniques G 3

(755B) Su, W. 1 2½-hr. cl.

Prereq.: 874.

Basic concepts and techniques in the appraisal of the individual. Standardized Methods. *Kemp.*

### 879 Educational and Vocational Guidance G 5

(756) A, W, Sp. 1 2½-hr. cl., 1 2-hr. lab.

Prereq.: 874.

Theories, instruments, resources for educational and vocational guidance of elementary and secondary students including an analysis of post-secondary school educational opportunities. *Peters and Staff.*

### 880 Guidance Practices in the Elementary School G 3

Su, W. 1 2½-hr. cl.

Prereq.: 874.

The application of guidance concepts and services to the elementary school situation. *Peters and Staff.*

**881 Practicum in School Guidance Work G 3**(818) *Su, A, W, Sp. 2 2-hr. cl., 2 to 4-hr. lab.**Prereq.: 875, 877, 878, 879, Psychol. 882 and permission of instructor.**Repeatable to a maximum of 9 cr. hrs.*

Emphasis on practical experience in counseling and working with the supporting guidance service including:

- a. Introduction to high school counseling.
- b. Supervised practice in high school counseling.
- c. Supervised field experience in the high school.
- d. Group procedures practicum.
- e. Group counseling practicum.

**884† Internship in Teaching G 3-6**(538) *A, W, Sp.**Prereq.: Permission of area adviser.**Not open to students with credit for 589.**Repeatable to a maximum of 12 cr. hrs.*

Planned professional teaching experience toward certification for post-degree students.

**885 Supervised Teaching in Special Education G 3-6**(764) *A, W, Sp.**Prereq.: Permission of instructor.**Not open to students with credit for 710.**Repeatable to a maximum of 12 cr. hrs.*

Student teaching for qualified students in the area of special education.

885.32 *Blind and Partially Seeing*885.54 *Mental Retardation*885.55 *Deaf and Hard of Hearing***899 Interdepartmental Seminar G 1-5***A.**(See under Interdepartmental Seminars)**Hack and Nystrand.***911 Conceptions of Mind in Educational Theory G 3**(757) *Su, A. 1 2½-hr. cl.**Prereq.: 637 or equiv.*

A study of the doctrines of the mind that have exercised a determining influence upon educational theory and practice.

**912 The Thinking Process in Its Educational Bearings G 3**(758) *Su, W. 1 2½-hr. cl.**Prereq.: 637 or equiv.*

A study of the thinking process for the purpose of tracing its implication for educational theory and classroom practice.

**913 Modern Trends in Educational Philosophy G 3**(759) *Su, A, W. 1 2½-hr. cl.**Prereq.: 637 or equiv.*

A discussion of alternative philosophies and their implications for current educational theory. *Kircher.*

**914 Moral and Religious Ideals in Education G 3**(760) *Su, Sp. 1 2½-hr. cl.**Prereq.: 637 or equiv.*

An inquiry into the role of religion in public education practices, court decision, and controversial proposals. *Kircher.*

**915 Social Philosophies and Their Educational Bearings G 3**(809) *Su, Sp. 1 2½-hr. cl.**Prereq.: 637.*

A study of social philosophies in terms of their significance for educational procedures and programs. *Jewett.*

**916 The Educational Philosophy of John Dewey G 3**(810) *Sp. 1 2½-hr. cl.**Prereq.: 912 or equiv.*

A systematic study of the writings of John Dewey in their bearings upon educational theory and practice. *Kircher.*

**917 Comparative Philosophy of Education G 3**(859) *W. 1 2½-hr. cl.**Prereq.: 912 or 913 or equiv.*

A study of alternative philosophies of education and the speculative development of their implications for educational practice. *Kircher.*

**920 Advanced Concepts in Elementary School Science Education G 3***W. 3 cl.**Prereq.: 811 or permission of instructor.*

Emphasis on functions of leadership personnel in developing and improving elementary school science programs and on evaluation of current developments and research. *Languis.*

**922 Problems in Curriculum and Instruction in Inner-City Schools G 3***Su, W. 3 cl.**Prereq.: 860 or 861 or equiv.*

An analysis of current problems and examination of related research in the field of curriculum and instruction in inner-city elementary and secondary schools. *Galloway.*

**925 Seminars in Education G 2-5**(800) *Su, A, W, Sp.*

Students, with permission of advisers, may register for more than one section of 925 or for the same section two or more times.

**Research Problems in:****925.09 Speech Education***Su. Theory and Practice in Forensics. Rieke.**Su. Communication of Information. Knowler.**A. The Basic College Speech Course. Douglas.**A. Modern Trends in Speech Education. Lewis.**W. Significant Contributors to Contemporary Communications. Brooks.**W. Creative Drama and Children's Theatre. Lewis.**Sp. Communications and Personality. Lewis.**Sp. Speech Facilities and Resources. Lewis.*



- 925.10 **Elementary Education**  
*Su.* For Master Students of Tomlinson.  
*A.* Modern Mathematics. Harding.  
*A.* Language Arts. Huck and King.  
*A.* For Masters Students of Tomlinson.  
*W.* General Elementary. Tomlinson.  
*Sp.* Social Studies and Sciences. Languis and Tomlinson.  
*Sp.* For Master Students of Huck, King, Languis, and Stull.  
*Sp.* The Preadolescent. Loomis.
- 925.21 **Industrial Arts Education**  
*Su.* *A.* *W.* *Sp.*
- 925.22 **Trade and Industrial Education**  
*Su.* *W.*
- Reese.
- 925.23 **Business Education**  
*Su.*
- Wells.
- 925.25 **Teaching of English**  
*Su.* *A.* *W.* *Sp.*
- Eberhart and Zidonis.
- 925.26 **Teaching of Mathematics**  
*Su.* *A.* *W.* *Sp.*
- Crosswhite, Lazar, and Trimble.
- 925.27 **Teaching of Sciences**  
*Su.* *A.* *W.* *Sp.*
- Howe, Richardson, and Schlessinger.
- 925.28 **Teaching of Social Studies**  
*Su.* *A.* *W.* *Sp.*
- Jewett, Muesig, and Staff.
- 925.29 **Distributive Education**  
*Sp.*
- 925.33 **Adult Education**  
*Sp.*
- Dowling and Ohliger.
- 925.34 **Guidance**  
*Su.* *A.* *W.* *Sp.*
- Kemp, Peters, Riccio, and Wigtil.
- 925.35 **Higher Education**  
*W.* *Sp.*
- Burnett, Frankie, and Straub.
- 925.36 **Teacher Education**  
*Su.* *A.* *W.* *Sp.*
- Andrews, Coon, and Cottrell.
- 925.40 **History of Education and Comparative Education**  
*Su.* *A.* *Sp.*
- Sanders and Sutton.
- 925.41 **Philosophy of Education**  
*A.* *W.* *Sp.*
- 925.43 **Radio and Television Education**  
*A.* *W.* *Sp.*
- Tyler.
- 925.44 **Educational Administration**  
*A.* *W.* *Sp.*
- Larmee, Laughlin, and Staff.
- 925.45 **Teaching of Foreign Languages**  
*Su.* *A.* *W.* *Sp.*
- Allen, Otto, and Pimsleur.
- 925.46 **Audio-Visual Communication**  
*Su.* *A.* *W.* *Sp.*
- Dale.
- 925.47 **Exceptional Children**  
*Su.* *A.* *W.* *Sp.*
- Cassidy, Huelsman, and Staff.

- 925.48 **Educational Research**  
*Su.* *A.* *W.* *Sp.*
- Novak and Staff.
- 925.49 **Curriculum and Instruction**  
*Su.* *A.* *W.* *Sp.*
- Alberty, Duncan, and Klohr.
- 925.50 **Educational Change**  
*W.*
- Blanke.
- 925.56 **Reading**  
*A.* *Sp.*
- Huck, Huelsman, and King.

## 927 History of Universities G 3

- (711) *Su.* *W.* *Sp.* 2 1½-hr. cl.  
 The university as an institution through ten centuries; patterns of development in different countries; German, English, American contributions to the idea of the American university. Sutton.

## 928 The History of Educational Thought: Ancient and Medieval G 3

- (775) *A.* 1 2½-hr. cl.  
*Prereq.: 632 or 636.*  
 Study and analysis of the major educational theories of the ancient and medieval periods including the educational writings of Plato, Aristotle, and St. Augustine. Mehl.

## 929 The History of Educational Thought: Modern G 3

- (776) *Su.* *Sp.* 1 2½-hr. cl.  
*Prereq.: 632 or 636.*  
 Study of the major educational theories since 1500 including Montaigne, Milton, Locke, and Rousseau and their influence on contemporary educational theory and practice. Mehl.

## 931 General Methods in Adult Education G 3

- (774A) *W.* 1 2½-hr. cl.  
*Prereq.: Permission of instructor.*  
 The psychological and sociological factors affecting adults as learners; the uses and adaptations of various methods and techniques for teaching adults. Dowling.

## 932 Discussion Methods in Adult Education G 3

- (774B) *Sp.* 1 2½-hr. cl.  
*Prereq.: Permission of instructor.*  
 The roundtable, forum, panel symposium, and other forms of discussion as applied to adult groups; laboratory practice; clinical analysis of individual difficulties. Ohliger.

## 933 Internship in Adult Education G 9

- Su.* *A.* *W.* *Sp.*  
*Prereq.: 12 cr. hrs. of graduate work in Adult Education.*  
*Repeatable to a maximum of 18 cr. hrs.*  
 Limited to Ph.D. majors in adult education and selected Master's candidates with major in adult education.  
 Dowling and Ohliger.

**934 Organization and Administration G 3  
of Adult Education Programs**

(898) A, 1 2½-hr. cl.

Prereq.: 672 and permission of instructor.

Methods of determining needs, developing programs, staffing, financing, evaluating, and improving adult education programs in colleges and universities, public schools, and other agencies. *Dowling.*

**937 Direct Experiences in Teacher Education G 3**

A, W. 3 cl.

Prereq.: Master's degree, college supervision of student teachers or permission of instructor.

An analysis of student teaching and related direct experiences in teacher education with special emphasis on the theoretical basis, purposes, organization, curriculum patterns, evaluation, administration, and problems in the design of experiences. *Andrews.*

**938 Instruction in Higher Education G 3**

Su, W. 3 cl.

A study of the teaching-learning environment in college, including student culture, learning theory and classroom procedure, examinations, and evaluation. *Burnett.*

**939 The Community Junior College G 3**

(832) Su, A, Sp. 2 cl.

Origin and development of the community college, including an evaluation of general, college-parallel, terminal, and adult education programs in public and private institutions. *Frankie.*

**940 Administration of Higher Education I G 3**

(845) A, Sp. 2 2-hr. cl.

Purposes and scope of higher education; patterns of general control; theories of administration, allocation of function, and coordination in higher education. *Frankie.*

**941 Theories and Curricula of Higher Education G 5**

(848) Su, A, W. 2 2-hr. cl., 1 hr. arr.

A study of current theories of general education of representative and experimental college programs in the United States. *Kircher.*

**942 Administration of Higher Education II G 3**

(854) Su, W. 2 1½-hr. cl.

Prereq.: 940.

Principles and problems of control, allocation of function, coordination, financial support, business administration, and evaluation in higher education, including graduate and professional education. *Burnett.*

**943 Interaction of the Student and the College Environment G 3**

(855) A, Sp. 2 cl.

A focus on the nature of the college environment, entering student, academic procedures, student performance, and student culture for those planning careers in college student personnel work. *Burnett.*

**944 Curriculum in Teacher Education G 5**

(850) Su, A, Sp. 2 2-hr. cl., 1 hr. arr.

Prereq.: 860 or permission of instructor.

Bases and development of curriculum in teacher education (process and product); comparative study of programs for the preparation of teachers; analysis of the implications of current research for programs of teacher education. *Cottrell.*

**946 Introduction to School Administration G 3**

(727) Su, A, W, Sp. Cl. hrs. arr.

Prereq.: 585 or 587 or equiv.

The nature of educational administration—its purposes, the tasks, situational factors, processes, qualifications for the job—personnel assessment, preparation, continued growth; professional opportunity and challenge. *Hack, Laughlin, Nystrand, and Staff.*

**947 Introduction to the Principalship G 3**

(808) Su, A, W, Sp. 1 3-hr. cl.

Prereq.: 946.

General introduction to the elementary and secondary school principalships. Stressed are administrative processes and the principal's role in team administration. *Nystrand and Staff.*

**948 The Elementary School Principalship G 3**

(825) Su, W, Sp. 1 2½-hr. cl.

Prereq.: 946.

Emphasis is given to the elementary-school principal's role in providing leadership in policy-making, personnel matters, public relations, research, and business management. *Staubb.*

**949 Administrative Problems of the High School Principal G 3**

(844) Su, W, Sp. 1 3-hr. cl.

An advanced course in educational administration dealing with problems and issues in the organization and administration of the secondary school. *Laughlin.*

**950 Administrative Problems of Beginning Superintendents G 3**

(870) Su, Sp. 1 2½-hr. cl.

Prereq.: 946.

Emphasis on such problems as school-community relations, finance, school facilities, staff personnel, pupil personnel, instruction, and organization. *Hack and Staff.*

**951 Administrative Problems of the City School System G 3**

(871) Su, W. 1 3-hr. cl.

Prereq.: 946.

A study of problems of educational administration in the complex city school system with emphasis on solution of educational problems caused by the unique demographic characteristics of the city. *Larmee and Staff.*

**952 Legal Aspects of School Administration G 3**

(823) Su, W, Sp. 1 2½-hr. cl.

Prereq.: 946 or equiv.

A study of statutory and case law, legal principles and provisions, as related to educational administration district, personnel, finance, curriculum, contracts, property, liability, and organization. *Staubb.*



- 953 School Community Relations G 3**  
 (853) Su, W, Sp. 1 2½-hr. cl.  
 Prereq.: 946 or equiv.

Principles and practice in developing and maintaining appropriate school community relationships; professional vs. lay roles; institutional relationships; opinion analysis, communication processes; and decision-making patterns. Staub and Staff.

- 954 Administration of Pupil Personnel G 3**  
 (872) Su, A. 1 3-hr. cl.  
 Prereq.: 946.

The organization and administration of pupil personnel services—legal phases of the program, policy development and staffing relationships are considered. Laughlin.

- 955 Staff Personnel Administration G 3**  
 (873) Su, A, Sp. Cl. hrs. arr.  
 Prereq.: 946.

A study of personnel administration in educational institutions—recruitment, orientation, appraisal, in-service training, promotion, certification, dismissal, personnel policies, salary provisions, welfare and collective negotiation. Larmee.

- 956 School Finance G 3**  
 (875) Su, A, Sp. 1 3-hr. cl.  
 Prereq.: 946.

General school finance problems; finance and organization; sources of school support; variations in financial ability and effort; state-local finance plans; federal role. Hack.

- 957 Business Administration of Schools G 3**  
 (876) Su, W. 1 3-hr. cl.  
 Prereq.: 946.

Function of business administration in schools; administrative relationships; personnel; budgetmaking; procuring revenue, financial outlay, and accounting; managing plant facilities and supplies; payroll, transportation. Hack.

- 958 School Plant Planning G 3**  
 (880) Su, W. 1 2-hr. cl., 1-hr. arr.  
 Prereq.: 946 or equiv.

Problems and techniques in determining educational facility needs, evaluating facilities, planning for new construction and remodeling, utilizing specialized personnel; related legal and financial aspects. Candoli, Conrad, and Wohlers.

- 959 Practicum in Educational Administration G 4**  
 (836) A. 1 cl., lab. arr.  
 Prereq.: 946, Master's degree. Two yrs. teaching experience or equiv. and permission of instructor.

A study of the literature and methods of school surveys, as a basis for the investigation of practical problems in school administration and supervision. Nystrand.

- 960 Practicum in Educational Administration G 4**  
 (837) W. 1 cl., lab. arr.  
 Prereq.: 959.

Continuation of 959. Larmee.

- 961 Practicum in Educational Administration G 4**  
 (838) Sp. 1 cl., lab. arr.  
 Prereq.: 960.

Continuation of 960. Laughlin.

- 964 Experimental Design in Education G 4**  
 W. 3 cl., 1 1-hr. lab.  
 Prereq.: Introductory inferential statistics or permission of instructor.

Experimental design will be studied with emphases placed upon features most frequently encountered in educational research and upon acquisition of quantitative understandings in laboratory setting. Novak.

- 965 Evaluation Functions and Methodology in Education G 3**  
 Sp. 3 cl.  
 Prereq.: Psychol. 510 or equiv.

The functions and methodology of evaluation relative to planned educational change, with emphasis on the relationships between data collection, analysis, reporting and relevant decision processes. Stufflebeam.

- 966 Research Process: Practicum in Educational Research G 3**  
 Su. 3 cl.  
 Prereq.: Previous courses in the Basic Sequence in Educational Research Methodology or permission of instructor.

The utilization of research strategies in the pursuit of educational problems, with emphasis upon the development, conduct, and completion of individual projects.

- 967 Research Management G 3**  
 Sp. 1 2½-hr. cl.  
 Prereq.: Permission of instructor.

The use of management information systems in the planning and controlling of educational research and development projects, with particular emphasis on network planning techniques. Cook.

- 968 Problems in the Development of Research Projects G 3**  
 (802) A, W. 3 cl.  
 Prereq.: Permission of instructor.

A discussion of conceptual, methodological and communication problems encountered in the development of research projects; faculty members engaged in project development are invited to participate. Novak.

- 970 The English Curriculum: Language and Composition G 3**  
 Su, W. 3 cl.  
 Prereq.: 20 cr. hrs. in Ed. and 25 cr. hrs. in Engl.

An evaluation of current trends and developments in linguistics and composition instruction and their relevance for the English curriculum. Bateman and Staff.

- 971 The English Curriculum: Literature G 3**  
 Su, Sp. 1 2½-hr. cl.  
 Prereq.: 20 cr. hrs. in Ed. plus 25 cr. hrs. in Engl.

Critical examination of trends in the secondary school literature program, including programs for the able and the disadvantaged student, basic objectives, types of organization, technique of developing literary appreciation. Eberhart and Staff.

**993 Advanced Studies in Education G 3**(835) *Su, A. W. Sp.**Prereq.: Graduate standing in the M.Ed. Program. Permission of instructor.*

Designed to enable candidates pursuing the Master of Education degree to demonstrate ability to attack and deal with problems independently.

- 993.09 Speech Education
- 993.10 Elementary Education
- 993.21 Industrial Arts Education
- 993.22 Trade and Industrial Education
- 993.23 Business Education
- 993.25 Teaching of English
- 993.26 Teaching of Mathematics
- 993.27 Teaching of Sciences
- 993.28 Teaching of Social Studies
- 993.29 Distributive Education
- 993.33 Adult Education
- 993.34 Guidance
- 993.40 History of Education and Comparative Education
- 993.41 Philosophy of Education
- 993.43 Radio and Television Education
- 993.44 Educational Administration
- 993.45 Teaching of Foreign Languages
- 993.46 Audio-Visual Materials of Instruction
- 993.47 Exceptional Children
- 993.48 Educational Research

**999 Research in Education G Arr.**(950) *Su, A. W. Sp.*

Research for thesis or dissertation purposes only.

## Electrical Engineering

Office: 105 Caldwell Laboratory, 2024 Neil Avenue

Professors Thurston (Chairman), Ayres, Boone, Cornet, Cowan, W. Davis, Dreese (Emeritus), Hsu, Kennaugh, Kimberly (Emeritus), Ko, Kouyoumjian, Kraus, Levis, Mathis, McMaster, Middleton, Peake, Peters, Richmond, Smith, Walter, Warren, Weed, Weimer, and Yovits; Adjunct Professors Adawi and Warfield; Associate Professors Anderson, Bacon, Battocletti, Collins, D. Davis, Gottling, Higgy (Emeritus), Koozekanani, Ksienski, Lackey, and Long; Assistant Professors Breeding, Campbell, Devore, Ehman, Erdman, Fenton, Hanlon, Hemami, Hodge, Lawrence, Mayhan, Meadors, Olson, Rudduck, Swartz, and Williams; Visiting Assistant Professor El-Sawah; Adjunct Assistant Professor McMillen; and Instructors.

**500 Electrical Engineering U 4**(642) *A, W, Sp. 3 cl., 3-hr lab.**Prereq.: Physics 233, Math. 254.*

Not open to students majoring in Elec. E. or Eng. Physics.

Introduction to circuit analysis; circuit analysis concepts and their extension to mechanical and thermal systems by analogy; electrical instruments and measurements. Cowan and Weed.

**501 Circuit Theory I U G 3 or 4**(612) *A, W. 3 or 4 cl.**Prereq.: Math. 254, Physics 233, concur. 510, Math. 255.*

Basic principles of linear circuit theory; network equations, phasor algebra, resonance and the analysis of transient and steady state behavior of simple circuits.

**502 Circuit Theory II U G 3 or 4**(613) *W, Sp. 3 or 4 cl.**Prereq.: 501.*

Network equivalence, poles and zeroes, Fourier series, matrix notation and general node and mesh equations.

**503 Circuit Theory III U G 4**(614) *A, Sp. 4 cl.**Prereq.: 502.*

Network theorems, polyphase circuits, magnetic circuits, power spectra, sampling theorem, Fourier integral.

**504 Circuit Theory IV U G 4**(615) *A, W. 4 cl.**Prereq.: 503, concur. 620, Math. 514.*

Frequency selective networks, modulation, Laplace transform, two-ports, filters.

**507 Electrical Laboratory I U 2**(662) *A, W. 1 cl., 1 3-hr. lab.**Concur.: 501 or 510. Prereq.: Math. 254 and Physics 233.*

Characteristics and capabilities of electrical instruments; measurement of resistance, capacitance, inductance and impedance at audio frequencies; two-dimensional field plotting. Hanlon.

**508 Electrical Laboratory II U 2**(663) *W, Sp. 1 cl., 1 3-hr. lab.**Prereq.: 507, concur. 502.*

A laboratory study of electric circuits including resonant circuits, current and voltage loci, coupled circuits, network theorems, and circuit transients. Hanlon.

**510 Field Theory I U G 3 or 4**(617) *A, W. 3 or 4 cl.**Prereq.: Physics 233, Math. 254, concur. 501.*

Vector relations, static electric fields, dielectric materials, boundary conditions, field mapping, steady electric currents and their magnetic fields, motion of charged particles.

**511 Field Theory II U G 3 or 4**(618) *W, Sp. 3 or 4 cl.**Prereq.: 510, concur. Math. 514.*

Ferromagnetic materials, time changing electric and magnetic fields, Maxwell's equations, relations between field and circuit theory, plane waves, Poynting vector, energy relations, boundary value problems.

**512 Transmission and Radiation U G 3 or 4**(619) *A, Sp. 3 or 4 cl.**Prereq.: 511.*

General transmission theory, infinite line, terminated line, impedance transformation, rectangular waveguides, group and phase velocity, impedance of waveguides, simple antenna systems.



- 517 Electrical Laboratory III U 2**  
 (664) A, Sp. 1 cl., 1 3-hr. lab.  
 Prereq.: 508, concur. 508 and 518.

Transmission line parameters; attenuation, magnitude and phase of voltage and current on lines; reflected waves; waveguide characteristics and techniques; antenna patterns and impedances. *Peters.*

- 520 Electron Devices and Controls U 4**  
 (644) A, W, Sp. 3 cl., 3-hr. lab.  
 Prereq.: 500.

Theory and applications of semiconductors, transistors, photoelectric, vacuum and gas filled tubes. Study of control circuits, feedback, amplifiers, oscillators, filters, magnetic amplifiers and instrumentation. *Weed.*

- 540 Electrical Engineering U 4**  
 (643) A, W, Sp. 3 cl., 3-hr. lab.  
 Prereq.: 500 or equiv.

Not open to students majoring in Elec. E. or Eng. Physics.

Electromechanical devices; an introduction to the basic principles of analysis of electromechanical devices. The approach is organized to extend the circuit concepts and dynamic analysis introduced in the preceding course. *Cowan.*

- 580 Professional Aspects of Electrical Engineering U 1**  
 (504) A. 1 cl.

Employment problems of graduating seniors, professional aspects of engineering and professional societies and ethics. Discussion of employment practices. *Ayres.*

- 581 Experience in Practice U 5**  
 (625) A, W, Sp. Ten weeks of experience in practice following the 9th qtr., or 1 yr. of acceptable industrial experience before the end of the 5th yr.

Students must register and obtain complete information and forms from course supervisor. *Ayres.*

- 620 Electron Device Circuit U G 3 or 4 Theory I**  
 (626) A, W. 3 or 4 cl.

Prereq.: 503 and 510 or equiv.

Not for graduate credit to students majoring in Elec. E.

Elementary theory of electron device terminal characteristics; large and small signal analysis of electron devices as circuit components; applications to rectification, switching, and to amplification.

- 621 Electron Device Circuit U G 3 or 4 Theory II**  
 (627) W, Sp. 3 or 4 cl.  
 Prereq.: 504 and 620.

Not for graduate credit to students majoring in Elec. E.

Multistage amplifier coupling; broadbanding; feedback analysis and applications; power amplifiers; Class B and C large signal analysis.

- 622 Electron Device Circuit U G 4 Theory III**  
 (628) A, Sp. 4 cl.  
 Prereq.: 621.

Not for graduate credit to students majoring in Elec. E.

Oscillators, modulators, demodulators, AM and FM; switching networks utilizing vacuum, gas and solid-state devices; control circuits; system applications.

- 627 Electrical Laboratory IV U 2**  
 (665) A, W. 1 cl., 1 3-hr. lab.  
 Prereq.: 508, concur. 504 and 620.

Determination of terminal characteristics of vacuum, gaseous, and solid state electron devices; non-sinusoidal wave form frequency analysis; power supplies, three-phase rectifiers, single-stage amplifiers. *Campbell.*

- 628 Electrical Laboratory VI U 2**  
 (667) A, Sp. 1 cl., 1 3-hr. lab.  
 Prereq.: 627, concur. 622.

Amplitude modulation; demodulation of a modulated wave; production of shaped waveforms; switching and control circuit applications; design and evaluation of a single-frequency oscillator; filters. *Erdman.*

- 630 Introduction to Electron Devices U G 3 or 4**  
 W, Sp. 3 or 4 cl.

Prereq.: 620 and Physics 551 or equiv.

Not for graduate credit for students majoring in Elec. E.

Potential distribution in vacuum devices; carrier motion in fields; photoelectric, thermionic, secondary, field emission; space-charge flow, parameters, transit time, gaseous conduction, plasma properties in electron devices.

- 631 Electron Device Physical Theory I U G 3 or 4**  
 (768) Su, A, Sp. 3 or 4 cl.  
 Prereq.: 512, 621, 630, Eng. Mech. 510 or equiv.

Structure of the solid state; junction diode and transistor theory and models; fabrication techniques; space charge layer, field effect, photo-effect in semiconductors.

- 632 Electron Device Physical Theory II U G 3 or 4**  
 (769) Su, A, W. 3 or 4 cl.  
 Prereq.: 631.

Thermionic, thermoelectric, photo-voltaic, magnetohydrodynamic energy conversion; piezoelectric, ferroelectric and ferromagnetic devices; space-charge waves and microwave device theory.

- 640 Electrical Energy Conversion I U G 4**  
 (650) A, Sp. 3 cl., 1 3-hr. lab.  
 Prereq.: 511; concur. 503.

Not for graduate credit for students majoring in Elec. E.

Properties and theory of magnetic circuits as applied to electromechanical energy conversion. Transformers, non-linear magnetic devices; introduction to rotating machine analysis.

- 641 Electrical Energy Conversion II U G 3**  
 (651) A, W. 3 cl.  
 Prereq.: 640.

Not for graduate credit for students majoring in Elec. E.

Field and circuit concepts of idealized rotating machines; steady and transient states; thermal transients; control machines and systems.

- 642 Electrical Energy Conversion III** U G 3  
(652) W, Sp. 3 cl.  
Prereq.: 641.  
Not for graduate credit for students majoring in Elec. E.  
Field and circuit concepts of realistic rotating machines; generalized two-phase machines as control components; magnetic amplifiers.
- 647 Electrical Laboratory V** U 2  
(668) W, Sp. 1 cl., 1 3-hr. lab.  
Concur.: 642.  
Study of characteristics of general magnetic networks and saturable-core devices; transient and steady-state performance of selected singly and multiply excited electromechanical systems. Smith.
- 650 Introduction to Feedback Analysis** U G 3 or 4  
(716) A, W. 3 or 4 cl.  
Prereq.: 504 and 622, or 520 and Math. 255 with permission of instructor.  
Feedback systems, block diagrams and signal flow graphs, stability criteria, frequency response and pole-zero analysis; application of feedback to amplifiers and control systems; non-linear consideration.
- 657 Electrical Laboratory VII** U 2  
(669) A, W. 1 cl., 1 3-hr. lab.  
Concur.: 650.  
Laboratory study of feedback amplifiers, control systems and their components, operational amplifiers, and analog computers. Bacon.
- 660 Logic Circuit Theory** U G 3  
(740) A, W. 3 cl.  
Prereq.: 520 or 622 with permission of instructor.  
Synthesis of switching circuits using Boolean, Algebra, coding, sequential switching circuits. Lackey.
- 684 Economics and Organization of the Electrical Industry** U G 4  
(741) W, Sp. 4 cl.  
Prereq.: 503 or 540.  
Not for graduate credit to students majoring in Elec. E.  
Principles of engineering economy and financial analysis applied to electrical industry in its principal divisions; power supply, communications, manufacturing and merchandising. Ayres.
- 693 Individual Studies in Electrical Engineering** U G 1-18  
Su, A, W, Sp.  
Repeatable to a maximum of 18 cr. hrs.
- 694 Group Studies in Electrical Engineering** U G 1-18  
Su, A, W, Sp.  
Repeatable to a maximum of 18 cr. hrs.
- 700 Advanced Circuits** U G 3  
(707) A. 3 cl.  
Prereq.: 621.  
Introduction to network synthesis. W. Davis.
- 701 Communication Theory** U G 3  
(743) W. 3 cl.  
Prereq.: 622.  
Theory of communication, information content, frequency spectra, noise, methods of modulation, modulators, and demodulators. W. Davis.
- 702 Communications Systems** U G 3  
(747) Sp. 3 cl.  
Prereq.: 701.  
A study of the synthesis of amplitude and frequency modulated communication systems, with emphasis on transmitters and receivers. W. Davis.
- 703 Space Communications** U G 3  
Sp. 3 cl.  
Prereq.: 701.  
A study of space communication systems. Long-distance transmission, wave propagation, and system considerations. D. Davis and Peake.
- 707 Communications Laboratory I** U G 2  
(744) W. 1 cl., 1 3-hr. lab.  
Prereq.: 622 and 628.  
Theory and laboratory study of non-linear amplifiers and oscillators, modulators and detectors. D. Davis.
- 708 Communications Laboratory II** U G 2  
(748) Sp. 1 cl., 1 3-hr. lab.  
Prereq.: 707.  
Laboratory study of communications systems. D. Davis.
- 710 Microwave Circuits** U G 3  
(739) A. 3 cl.  
Prereq.: 512, concur. 718 or permission of instructor.  
Advanced waveguides, waveguide devices, amplifiers, generators and detection devices; special microwave techniques. D. Davis.
- 711 Radiation from Antennas** U G 3  
(718) W. 3 cl.  
Prereq.: 512.  
Dipole, loop, aperture, reflector, lens, surface wave, and other antennas; array theory; radiation resistance, directivity and input impedance. Kraus.
- 712 Microwave Optics** U G 3  
Sp. 3 cl.  
Prereq.: 512 or permission of instructor.  
Geometrical optics, physical optics, aperture radiation integrals, minimum range requirements, stationary phase, sidelobes, backlobes, aperture blocking, radar echo area, geometrical theory of diffraction, gyrotropic media. Peters.
- 713 Elements of Radio Wave Propagation** U G 3  
(756) W. 3 cl.  
Prereq.: 512.  
Practical calculations and procedures for predicting refraction and reflection by a plane or spherical earth; tropospheric, ionospheric, and scatter propagation. Levin.



- 714 Microwave Electronics** U G 3  
(788) W. 3 cl.  
Prereq.: 512, 631.

Interactions between electromagnetic fields and electron beams; transit time effects, velocity modulation phenomena, and space charge waves; klystrons, magnetrons, and traveling wave devices. *Cornet et.*

- 715 Radio Astronomy Instrumentation** U G 3  
(784) A. 3 cl.  
Prereq.: 504, 512, and 621, or Physics 632 and 784, or permission of instructor.

Theory and design of radio telescope antennas and receivers for radio astronomy and space research. *Ko and Kraus.*

- 717 Antenna Laboratory** U G 1  
(719) W. 1 3-hr. lab.  
Prereq.: 517, concur. 711.

Measurements and interpretation of antenna field patterns, impedances, gains, and current distribution. *Hodge and Kraus.*

- 718 Microwave Circuits Laboratory** U G 1  
(724) A. 1 3-hr. lab.  
Prereq.: 512 and 517, concur. 710 or permission of instructor.

Measurement of field and power distribution in waveguides; impedances, components and microwave generator properties. *D. Davis.*

- 720 Circuit Theory of Solid State Devices** U G 3  
(763) Su, W, Sp.  
Prereq.: 622 and 632 or equiv.

Advanced circuit theory of solid-state devices. *Boone and Thurston.*

- 721 Advanced Electronic Circuits** U G 3  
(781) Su, Sp.  
Prereq.: 622.

Integrating and differentiating circuits; counting circuits; timing circuits; pulse circuits; wave-forming and wave-shaping circuits. *W. Davis.*

- 727 Solid State Device Laboratory** U G 2  
(764) W. 1 cl., 1 3-hr. lab.  
Prereq.: 628, concur. 720.

Laboratory study of solid-state devices and materials. *Boone and Thurston.*

- 728 Advanced Electronic Circuits Laboratory** U G 2  
(782) Sp.  
Prereq.: 622 and 628, concur. 721.

Laboratory study of integrating and differentiating circuits; counting circuits; timing circuits; pulse circuits wave-forming and wave-shaping circuits. *W. Davis.*

- 732 Quantum Electron Devices** U G 4  
(787) Su, A, Sp. 4 cl.  
Prereq.: 631, Physics 661 and Math. 412 or equiv.

Electronic energy levels in quantum electron devices; application to energy transitions in crystalline and gaseous media; applications to semiconductors, masers, and lasers. *Hsu.*

- 733 Nonlinear Interactions of Fields** U G 3  
(789) W. 3 cl.  
Prereq.: 512 and 631.

Coupled mode theory of lumped circuit and traveling wave parametric interaction, Hamiltonian treatment of nonlinear interactions, nonlinear optics, stimulated Raman and Brillouin scatterings, phonon-phonon interactions. *Hsu.*

- 740 Introduction to Electric Power Systems** U G 3  
(790) A. 3 cl.  
Prereq.: 512 and 642.

System ability and related calculations of transmission line and apparatus constants. *Ayres and Smith.*

- 741 Electric Power Networks** U G 3  
(792) W. 3 cl.  
Prereq.: 512 and 642.

Fault calculation, network analysis, relaying studies, and traveling wave analysis applied to electric power system problems. *Ayres and Smith.*

- 742 Problems in Electric Power Systems** U G 3  
(794) Sp. 3 cl.  
Prereq.: 642.

Analog and digital computer applications to design and operation; recent developments in engineering techniques to meet current changes in systems and apparatus. *Ayres and Smith.*

- 747 High Voltage Laboratory** U G 2  
(791) W. 1 cl. 1 3-hr. lab.  
Prereq.: 512 and 642.

A laboratory study of high-voltage insulation. *Ayres and Smith.*

- 748 Power System Laboratory** U G 2  
(793) Sp. 1 cl., 1 3-hr. lab.  
Prereq.: 647, 741.

A laboratory study of power system engineering problems. *Ayres and Smith.*

- 751 Open Cycle Control and Instrumentation** U G 3  
(788) W. 3 cl.  
Prereq.: 641 and concur. 650, or 520 and 540 with permission of instructor.

Industrial electronic control and instrumentation using semiconductor, vacuum and gaseous electron devices; timing, pulse counting circuits, trigger methods; programmed sequence control; radio frequency heating; X-ray. *Weed.*

- 752 Feedback Control Systems** U G 3  
(793) W. 3 cl.  
Prereq.: 642 and 650, or 540 with permission of instructor, Math. 255 or 554.

Application of feedback principles to control systems, system equations; performance criteria; compensation, carrier systems, multivariable systems. *Weimer.*

- 753 Magnetic Amplifiers** U G 3  
(731) Sp. 3 cl.  
Prereq.: 642 and 650, or 520 and 540, with permission of instructor.

Theory and transient analysis of self-saturating magnetic amplifiers, system control and regulation, memory methods. *Weed.*

- 754 Advanced Control Systems** U G 3  
(738) Sp. 3 cl.  
Prereq.: 752.

Practical control systems with non-ideal components; non-linear systems, state variables. *Weed*.

- 757 Control Systems Laboratory I** U G 2  
(725) W. 1 cl., 1 3-hr. lab.  
Concur.: 751 or 752.

Experiments chosen by student interest from the course content of open cycle control and instrumentation and feedback control systems. *Weed and Weimer*.

- 758 Control Systems Laboratory II** U G 2  
(734) Sp. 1 cl., 1 3-hr. lab.  
Concur.: 753 or 754.  
May be taken without 757.

Experiments chosen by student interest from the course content of advanced control systems and magnetic amplifiers. *Weed and Weimer*.

- 760 Theory and Design of Digital Computers** U G 3  
(742) W, Sp. 3 cl.  
Prereq.: 660.

Number systems, introduction to computer programming, design of arithmetic units, counters and digital control systems, use of redundant codes and redundant equipment. *Lackey and Warfield*.

- 761 Advanced Logic** U G 3  
Sp. 3 cl.  
Prereq.: 760.

A review of two-level logic; introduction to multilevel logic and applications; neuron logic; linear sequential networks; reliable circuits with unreliable modules; introduction to coding theory. *Lackey*.

- 762 Information Theory** U G 3  
W. 3 cl.  
Prereq.: 660.

Introduction to information theory; codes, sources, transmission over noisy channels. *D. Davis and Lackey*.

- 767 Digital Computer Laboratory** U G 2  
(723) Sp. 1 cl., 1 3-hr. lab.  
Concur.: 760.

Laboratory study of counting, arithmetic and digital circuits. *Lackey and Warfield*.

- 770 Biological Control Systems** U G 3  
W. 2 cl., 1 3-hr. lab.  
Prereq.: 650 or equiv.

Application of electrical engineering to the analysis of biological control systems such as visual, muscular, thermal and cardiovascular; receptor, nerve axon, and muscle transfer characteristics. *Weed*.

- 771 Bio-Electrical Instrumentation** U G 3  
Sp. 2 cl., 1 3-hr. lab.  
Prereq.: 770.

Application of electrical engineering to instrumentation, monitoring, signal and data handling in bio-electrical measurements; consideration of implants, heart pacers, electrocardiograms and electroencephalographs, speech analysis. *Weed*.

- 794 Advanced Studies in Electrical Engineering** U G 1-18  
Su, A, W, Sp.  
Repeatable to a maximum of 18 cr. hrs.

- 800 Transients in Linear Systems** G 3  
(815) Su, A, W. 3 cl.  
Prereq.: 620.

Writing system equations for electrical, mechanical, and mixed systems with lumped parameters; use of Fourier, Laplace and Z-transform methods. *Weimer*.

- 801 State Variable Methods in Linear Systems** G 3  
A, W. 3 cl.  
Prereq.: 800.

Elements of linear transformation and matrix theory; state equations and vectors; differential time-invariant and time-variable systems; discrete systems; observability and Lyapunov stability. *Hemami*.

- 802 Network Synthesis I** G 3  
(830) Sp. 3 cl.  
Prereq.: 800 and Math. 559.

Modern theory of network synthesis with applications to advanced design of filters, equalizers, and compensators. *W. Davis and Warren*.

- 803 Network Synthesis II** G 3  
(831) A. 3 cl.  
Prereq.: 802.

Continuation of 802. *W. Davis and Warren*.

- 804 Communication Theory I** G 3  
(827) A, W. 3 cl.  
Prereq.: 504 or permission of instructor.

The application of Fourier series and Fourier integral methods of the design and analysis of communication circuits and signals.

- 805 Communication Theory II** G 3  
(828) W, Sp. 3 cl.  
Prereq.: 804 and Math. 520.

The application of statistical methods to problems in communication systems including signal representation, modulation, detection, and filtering.

- 806 Communication Theory III** G 3  
Sp. 3 cl.  
Prereq.: 805.

Topics selected from the communication applications of statistical decision-theory, signal representation, optimal filtering, and other matters of current interest. *Warren*.

- 808 Theory and Analysis of Magnetic Amplifiers** G 3  
(860) W. 3 cl.  
Prereq.: 622, 800, or equiv.

Theory of magnetic materials. Steady state and transient analysis of magnetic amplifiers; suppressed and free harmonics; power gain; resistive, inductive and capacitive load. *Weed*.

- 809 Analysis of Magnetic Amplifiers Memory Devices and Components** G 3  
(861) Sp. 3 cl.  
Prereq.: 808 and 850, or equiv.

The analysis of magnetic amplifiers with extrinsic and intrinsic feedbacks; a-c, d-c, or combination control; switching properties; and applications. *Weed*.



**810 Fundamentals of Electromagnetic Theory G 3**(832) *Su, A. W. 3 cl.**Prereq.: 512 or equiv.*

Solution of Maxwell's equations by scalar, vector, and hertzian potentials; plane waves in dielectric, conducting, and anisotropic media; polarization, boundary value problems, radiation, and scattering. *Kouyoumjian and Kraus.*

**811 Waveguides and Resonators G 3**(850) *W. 3 cl.**Prereq.: 810.*

General theory of waveguides, modes, discontinuities, losses, cavities, and power considerations. *Peake.*

**812 Theory of Microwave Components G 3**(853) *Sp. 3 cl.**Prereq.: 811.*

General circuit theory of one port and multiports; impedance and scattering concepts; reciprocity in microwave circuits; impedance transformations; directional devices; non-reciprocal devices, and non-linear elements. *Peake.*

**813 Radiation and Radiating Systems G 3**(851) *Sp. 3 cl.**Prereq.: 810.*

Radiation theory; dipole, linear, loop, helical, biconical, nad aperture antennas; beam shaping, aperture distribution, self and mutual impedance, microwave optics; radio telescope, antenna temperature. *Kraus.*

**814 Advanced Antenna Theory I G 3**(870) *Su. 3 cl.**Prereq.: 810.*

Field theorems; boundary-value problems; solution of the integral equations for scattering problems; radiation integrals; far-field criteria; antenna theorems; mathematical and numerical techniques. *Richmond.*

**815 Advanced Antenna Theory II G 3***A. 3 cl.**Prereq.: 810 or equiv.*

Analysis and synthesis of linear and planar radiating systems; excitation and propagation of surface and leaky waves; modulated traveling-wave structures; backward-wave antennas. *Walter.*

**816 Propagation of Electromagnetic Waves G 3**(852) *Sp. 3 cl.**Prereq.: 713 and 810.*

Advanced study of transmission and reception of radio waves in the presence of the earth and its atmosphere; tropospheric, ionospheric, and scatter propagation. *Levis.*

**817 Advanced Electromagnetic Theory I G 3***A. 3 cl.**Prereq.: 810 or equiv.*

Representation of fields by vector wave functions and dyadic Green's functions; Huygen's principle for electromagnetic waves; application to antenna and scattering problems. *Kouyoumjian.*

**818 Advanced Electromagnetic Theory II G 3***W. 3 cl.**Prereq.: 817.*

Asymptotic methods and the geometrical theory of diffraction; integral equations and variational methods; propagation through inhomogeneous media and anisotropic media; surface waves. *Kouyoumjian.*

**819 Advanced Electromagnetic Theory III G 3***Sp. 3 cl.**Prereq.: 817.*

Application of saddle-point methods to electromagnetic problems; Fock theory for currents on curved surfaces; application of variational and perturbation techniques to electromagnetic problems. *Kouyoumjian.*

**820 Methods of Analysis of Interaction Between Electrons and Fields G 3**(841) *A, Sp. 3 cl.**Prereq.: 631 and 810 or permission of instructor.*

Electron beams; energy transfer; induced current; space charge waves; traveling and backward wave interactions; coupled-mode analysis; crossedfield interactions. *Cornetet.*

**821 Theory of Electron Guns and Electron Beams G 3**(842) *W. 3 cl.**Prereq.: 631 and 810 or permission of instructor.*

Electron optical principles; effect of thermal velocities; effect of space charge; electron guns; periodic focusing. *Cornetet.*

**822 Velocity Variation Electron Tubes G 3**(845) *W. 3 cl.**Prereq.: 820.*

Transit time effects at high frequencies; velocity variation and theory of bunching; klystrons and related devices; harmonic generation. *Boone and Cornetet.*

**823 Electron Interaction with Traveling Waves G 3**(846) *Sp. 3 cl.**Prereq.: 822.*

Theory of electron interaction with traveling waves; applications to traveling-wave tubes; carcinotrons, magnetrons, and linear accelerators. *D. Davis.*

**829 Plasma Dynamics G 3**(844) *W. 3 cl.**Prereq.: 631 or 810, or equiv.*

Motion of ions and electrons, ionization processes, electromagnetic phenomena in plasma, electron beams in plasma. *Ko and Peters.*

**830 Solid State Electron Devices I G 3**(854) *A. 3 cl.**Prereq.: 622, 732, concur. 632, Math 512, or equiv.*

Introduction to solid-state electron devices; conduction mechanisms; magnetic effects; electrical properties of imperfections; dynamics of single crystals at high temperatures; control of impurity distribution. *Swartz.*

**831 Solid State Electron Devices II G 3**  
(855) W. 3 cl.

*Prereq.: 830, concur. Physics 727.*

Energy band theory of semiconductors, statistical distributions of carriers, non-equilibrium processes and carrier lifetime theory of mobility. *Swartz.*

**832 Solid State Electron Devices III G 3**  
(856) Sp. 3 cl.

*Prereq.: 831.*

Transport theory, high-injection and high-field phenomena, galvanomagnetic and thermoelectric effects, applications to special semiconductor devices. *Swartz.*

**833 Theory of Semiconductor Junction Devices G 3**

Sp. 3 cl.

*Prereq.: 632.*

Theory of pn junctions, diodes, transistors and related devices.

**834 Quantum Electron Devices G 3**  
(857) A. 3 cl.

*Prereq.: 732, 810, Math. 601 and Physics 728 or equiv.*

Analysis of energy of atomic gases as applied to gas lasers; crystal structure of solid-state maser and laser materials.

**835 Quantum Electron Devices G 3**  
(858) W. 3 cl.

*Prereq.: 834.*

Quantum mechanical and statistical analysis of energy levels in solids and of microwave and optical energy conversions in masers and lasers.

**836 Quantum Electron Devices G 3**  
(859) Sp. 3 cl.

*Prereq.: 835.*

Theory and design of masers and lasers; current research in quantum electron devices.

**837 Dielectric and Magnetic Electronics G 3**  
W. 3 cl.

*Prereq.: 630 and 732, or equiv.*

Application of dielectric and magnetic effects to electron devices; dipoles; local fields; electromechanical interactions; spontaneous polarization, domain structure and switching. *Gottling.*

**838 Semi-Insulator Electronics G 3**  
Sp. 3 cl.

*Prereq.: 630 and 732, or equiv.*

Conduction effects in low conductivity materials applied in electron devices; space-charge limited currents; tunneling devices; Schottky barrier effects; thin film electronics. *Gottling.*

**840 Electromechanical Systems G 3**  
(833) A. 3 cl.

*Prereq. or concur.: 800.*

Application of the methods of electric circuit analysis to mechanical, acoustical, electromechanical and electroacoustical systems. *Cowan.*

**850 Theory and Design of Feedback Control Systems G 3**

(847) W. 3 cl.

*Prereq.: 650 and 800, or permission of instructor.*

Linear feedback theory, signal-flow graphs, return difference, stability studies with parameter variation, independent control of transmission and sensitivity functions, multi-variable systems, approximation methods. *Weimer.*

**851 Synthesis of Linear Feedback Control Systems G 3**

(848) Sp. 3 cl.

*Prereq.: 850.*

Sampled-data systems, the Z-transform, digital compensation; synthesis of systems with statistical inputs and constraints; advanced topics. *Weimer.*

**853 Analysis of Non-Linear Systems G 3**  
(834) A. 3 cl.

*Prereq.: 800 and concur. 801.*

An advanced study of non-linear systems and methods of analysis; stability studies with Liapunov functions and functional analysis; applications from electric circuits and control systems. *Weimer.*

**854 Modern Control Theory I G 3**  
W. 3 cl.

*Prereq.: 851 or concur. 805.*

Stochastic processes applied to non-linear and adaptive systems; functional power series representation and analysis by graph theory; modeling, identification, and estimation. *Fenton and Hemami.*

**855 Modern Control Theory II G 3**  
Sp. 3 cl.

*Prereq.: 801.*

Optimal control by variational approach; minimum time, fuel, and energy problems; Pontryagin's maximum principle and dynamic programming. *Fenton and Hemami.*

**860 Information Science I G 3**  
A. 3 cl.

*Prereq.: 761 and Math. 520 or permission of instructor.*

Statistical decision theory, discriminant functions, pattern recognition, parametric training, non-parametric training, divergent information, separability; percepts, feature extraction, stochastic approximation, method of potential functions.

**863 Advanced Coding Theory I G 3**  
A. 3 cl.

*Prereq.: 761.*

The coding problem; linear codes and their implementation; cyclic codes. *Lackey.*

**864 Advanced Coding Theory II G 3**  
W. 3 cl.

*Prereq.: 863.*

Special codes including Bose-Chaudhuri and Fire codes; burst error correction; recurrent codes checking arithmetic operations; new developments in coding theory. *Lackey.*



## 865 Advanced Sequential Logic G 3

A. 3 cl.

Prereq.: 660 or permission of instructor.

Conversion from machine description to circuit description; simplification techniques based upon lattices, and matrix and group treatments. Machine isomorphisms, homomorphisms, and regular expressions. Warfield.

## Radio Astronomy Theory I

(See under Astron. 862.)

## Radio Astronomy Theory II

(See under Astron. 863.)

## 880 Advanced Studies in Electrical Engineering G 1-18

Su, A, W, Sp.

Repeatable to a maximum of 18 cr. hrs.

## 881 Seminar in Electrical Engineering G 1-3

A, W, Sp. 1-3 cl.

Prereq.: Permission of instructor.

Repeatable to a maximum of 18 cr. hrs.

- a. Research Topics in Electromagnetics. Sp. Kennaugh and Richmond.
- b. Solid State Electron Devices. Sp. Thurston.
- c. Information Theory. W, Sp. Saltzer.
- d. Nonlinear Quantum Electronics. Sp. Hsu.
- e. Recent Developments in Quantum Electronics. A, W, Sp. Hsu.
- f. Electrodynamics of Moving Media. W. Kouyoumjian.
- g. Electromagnetic Theory of Optical Devices. A. Collins.
- h. Radar Systems. Sp. Ksienski.
- i. Advanced Space Communications. A. Ksienski.
- j. Bio-Electrical Modeling. A. Weed.
- k. Solid State Electronics Technology. A, W. Middleton.

## 895 Interdepartmental Seminar in Radio Astronomy G 1-5

A, W, Sp.

(See under Interdepartmental Seminars.)

## 899 Interdepartmental Seminar G 1-5

A, W, Sp.

(See under Interdepartmental Seminars.)

## 910 Advanced Antenna Theory III G 3

W. 3 cl.

Prereq.: 804, 813 or equiv.

Time modulated antennas, synthetic aperture antennas, logical switching antennas, nonlinear processing antennas, and correlation arrays; the effects of signal-processing on beamwidth, gain, and multiple-target response. Ko and Walter.

## 999 Research in Electrical Engineering G Arr.

(950) Su, A, W, Sp.

Research for thesis or dissertation purposes only.

# Engineering Graphics

Office: 240 Hitchcock Hall, 2070 Neil Avenue.

Professors Yarrington (Chairman), Cooper (Emeritus), Field (Emeritus), Hang, Paffenbarger (Emeritus), Parkinson, Shupe, and Watkins; Associate Professors Kearns, LaRue, and Reed; Assistant Professors Baldwin, Denning, Devereaux, and Romeo; and Instructors.

## 100 Elementary Engineering Drawing U 4

(400) A, W, Sp. 4 2-hr. cl. and lab.

Use of instruments, projection drawing, auxiliary views, sections, size descriptions, and pictorial drawing. Baldwin.

## 102 Principles of Engineering Drawing U 4

(402) W, Sp. 4 2-hr. cl. and lab.

Prereq.: 100 or permission of instructor.

Orthographic Projection: Selected elements of descriptive geometry as theoretical bases for the graphical solution of technical problems and the development of other systems of projection; slide rules. Romeo.

## 111 Engineering Graphics I U 3

Su, A, W, Sp. 3 cl., 3 1-hr. labs.

Prereq.: One unit of high school geometry or Math. 116 or 150.

Not open to students with credit in Engr. Gr. (440).

A study of graphical language of engineering; applications of orthographic projection to three-dimensional relationships. Reed.

## 112 Engineering Graphics II U 3

Su, A, W, Sp. 3 cl., 3 1-hr. labs.

Prereq.: 111.

Not open to students with credit in Engr. Gr. (442).

A study of graphical methods for formulating, analyzing and representing engineering concepts; graphical computation; comparison of graphical procedures and equivalent mathematical and numerical methods. Watkins.

## 129 Engineering Drawings in Technical Communication U 3

(439) W. 3 2-hr. cl. and lab.

Prereq.: 2nd yr. standing.

Not open to students with credit in 102, 112, or (442).

Fundamentals of engineering drawing with emphasis on reading and understanding; orthographic shape description, conventional practices, threaded fasteners, dimensions and tolerances, working drawings, slide rule. Parkinson.

## 191 Engineering Graphics I (Honors) U 3

A. 3 2-hr. cl. and lab.

Prereq.: Honors admission to Pre-Engineering.

The graphic language of engineering and its application to the development and representation of engineering concepts, with in-depth emphasis on descriptive geometry.

## 192 Engineering Graphics II (Honors) U 3

W. 3 2-hr. cl. and lab.

Prereq.: 191 or invitation.

A continuation of 191 with emphasis on the graphical aspects of technical communication and the precise graphic equivalents of selected mathematical and numerical methods.

**194 Special Problems in Engineering Graphics** U 1-5  
W, Sp.

*Prereq.: Permission of instructor.*

Selected problems of an experimental nature stressing the systematic approach to engineering graphics problems and embracing appropriate modes of attack.

**200 Computer Utilization with Introduction to Engineering Analysis** U 3

Su, A, W, Sp. 4 cl. and lab. hr.

*Prereq.: Math. 153.*

Digital computer applications to engineering analysis; processing a program in an algebraic language utilizing the facilities of the Computer Center. *Hang.*

**204 Technical Drawing** U 4

(504) A. 4 2-hr. cl. and lab.

*Prereq.: 102, 112, or (442).*

Dimensioning applied to detail and assembly drawings with an introduction to limits and tolerances; technical sketching of machine parts; representation and specifications of gears, piping and welding. *Kearns.*

**206 Structural Drawing** U 4

(506) W. 4 2-hr. cl. and lab.

*Prereq.: 204, 112, or (442).*

Introduction to structural drafting; includes steel and frame structures; riveted, bolted and welded connections; terminology and erection requirements. *Denning.*

**208 Production Illustration** U 4

(508) Sp. 4 2-hr. cl. and lab.

*Prereq.: 206 or permission of instructor.*

Commercial and industrial applications of pictorial representation; instrument drafting techniques, rendering, templates, automated drafting and reproduction methods. *Baldwin.*

**237 Graphic Presentation** U 5

(537) A. 5 2-hr. cl. and lab.

*Prereq.: 2nd yr. standing.*

Representation of three-dimensional subjects by precise graphics; orthographic and pictorial; shades and shadows. *Parkinson.*

**755 Chemical Plant Design** U G 3

Sp. 2 3-hr. cl. and lab.

*Prereq.: Chem. E. 5th yr. standing and (442); concur. Chem. E. 764.*

Sketching and preliminary layout for industrial chemical plants, including design and selection factors for equipment and process auxiliaries. *Parkinson.*

## Engineering Mechanics

Office: 209 Boyd Laboratory, 155 West Woodruff Avenue

Professors West (Chairman), Folk (Emeritus), Graham, Korda, Leissa, Ott (Emeritus), and Powell (Emeritus); Associate Professors Clausen, Graff, and Tucker (Emeritus); Assistant Professors Fretwell, Fu, Popelar, Segerlind, Stevens, Wu, and Yu; Visiting Assistant Professor Kupper; and Instructor.

**201 Applied Mechanics** U 4

(511) A. 3 cl., 2 1-hr. labs.

*Prereq.: Math. 151.*

Statics of force systems by analytical and graphical methods; centroids and moment of inertia; stresses and strains of structural members; combined stresses by Mohr's Circle; columns; deflections and statically indeterminate beams by area moments.

**202 Applied Mechanics** U 4

(512) W. 3 cl., 2 1-hr. labs.

*Prereq.: 201.*

Continuation of 201.

**203 Applied Mechanics** U 4

(513) Sp. 3 cl., 2 1-hr. labs.

*Prereq.: 202.*

Continuation of 202.

**210 Statics** U 5

(521) Su, A, W, Sp. 5 cl.

*Prereq.: Physics 231 and/or concur. Math. 254.*

Resultant and equilibrium of coplanar and noncoplanar force systems; trusses, frames, and connected bodies; friction; centroids and moment of inertia of masses and areas.

**410 Dynamics** U 3

(607) A, W, Sp. 3 cl.

*Prereq.: 210.*

*Not open to students with credit for 510.*

Linear and angular motion from constant and variable forces; connected bodies; impulses; momentum; energy.

**420 Strength of Materials** U 5

(602) Su, A, W, Sp. 4 cl., 2 1-hr. labs.

*Prereq.: 210.*

Normal and shearing stress and strain; energy; torsion; flexural stress; beam deflections; combined stress, theories of failure; columns.

**510 Dynamics** U G 5

(617) Su, W, Sp. 5 cl.

*Prereq.: 420 or concur., Math. 255 or 556.*

Dynamics of particles and rigid bodies; impulses, momentum, work, energy; three dimensional vector acceleration; conservative systems; single degree of freedom vibration analysis.

**521 Stress Analysis I** U G 3

(605) W, Sp. 3 cl.

*Prereq.: 420.*

Statically indeterminate and variable section beams by area moments; bending of non-symmetrical section; energy of bending and shear; beam limit design; torsion of open and closed non-circular sections.

**522 Stress Analysis II** U G 3

(606) A, Sp. 3 cl.

*Prereq.: 420.*

Failure theories: Mohr's circle for strain rosettes; thick cylinders; non-circular torsion; curved beams; Castigliano's theorem.

**621 Advanced Strength of Materials** U G 3

(712) W. 3 cl.

*Prereq.: 420 and/or concur. Math. 512 or 557.*

Beams on elastic foundations; beam columns; deflection curves by trigonometric series; limitations of superposition; suspension systems; large deflections; rings loaded perpendicular to their plane.



- 624 Elastic Energy Theory** U G 3  
(716) A. 3 cl.  
*Prereq.: 521 and one of: Civil E. 632, 530, Aero-Astro. E. (710).*

Deformations and stress in frames, beams, bents, rings, arches, and columns; redundant beams and frames; combined direct and torsional stresses; shear deformations.

- 627 Experimental Methods in Mechanics** U G 3  
(703) A, W, Sp. 2 cl., 2 lab. hrs.  
*Prereq.: 420.*

Static and dynamic strain analysis by electrical gages; grid techniques; brittle coatings; analogies; reflective photoelasticity in normal and oblique incidence; motion measurements.

- 660 Fluid Dynamics** U G 5  
A. 5 cl.  
*Prereq.: 410 and Math. 514.*

Basic equations and concepts of fluid flow; two and three dimensional inviscid flow problems; conformal transformations; vortex motion; viscous flow; boundary layer effects; compressible flow.

- 694 Special Group Studies in Engineering Mechanics** U G 2-5  
(799) Su, A, W, Sp.  
*Prereq.: 13 cr. hrs. of 400 level in Eng. Mech. and permission of instructor.*  
*Repeatable to a maximum of 15 cr. hrs.*

The student must register for specific problems in the areas indicated below, and may register for more than one at a time.

- a. Experimental Stress Analysis
- b. Dynamics
- c. Fluid Mechanics
- d. Applied Elasticity
- e. Strength of Materials
- f. Vibrations
- g. Plasticity
- h. Plates and Shells
- i. Continuous Media

- 700 Methods of Engineering Analysis** U G 3  
(750) W. 3 cl.  
*Prereq.: 10 cr. hrs. 700 level in Eng. Mech. and Math. 512.*

Comprehensive study of techniques and devices for solving equations arising in engineering mechanics.

- 711 Advanced Engineering Dynamics** U G 3  
(717) W. 3 cl.  
*Prereq.: 410 and Math. 255 or 556.*

Three-dimensional vector statics; kinematics and kinetics of particles and rigid bodies; energy momentum, stability; application of Lagrange's equations to machinery, vehicles, ballistics; gyroscope.

- 731 Vibrations of Discrete Systems** U G 3  
(707) A. 3 cl.  
*Prereq.: 410 and Math. 255 or 556.*

Free and forced vibrations of mechanical systems having lumped mass and elasticity; normal coordinates; dissipative system; stability; simple engineering applications.

- 732 Non-Linear Vibrations** U G 3  
(803) Sp. 3 cl.  
*Prereq.: 731 and Math. 552 or equiv.*

Vibrations of damped and undamped systems with non-linear restoring forces; self-sustained oscillations; application of Hill's equation of stability of non-linear oscillations.

- 740 Applied Elasticity I** U G 3  
A. 3 cl.  
*Prereq.: 420 and Math. 512 or equiv.*

Classical problems in elasticity; St-Venant torsion and bending theory; plane problems in rectangular and polar coordinates; axisymmetric problems; thermoelasticity.

- 741 Applied Elasticity II** U G 3  
W. 3 cl.

A continuation of 740.

- 748 Photoelasticity** U G 3  
(704) A, W, Sp. 2 cl., 2 lab. hrs.  
*Prereq.: 420.*

Stress analysis using polarized light techniques; polariscope optics; photoelastic materials and models; two and three dimensional problems; dynamics photoelasticity, photoplasticity, thermal studies.

- 751 Theory of Elastic Stability** U G 3  
(715) A. 3 cl.  
*Prereq.: 521 or 522, Math. 255 or 556.*

Buckling of struts, rings, arches and plates; torsional instability; stability criteria, exact and approximate methods.

- 752 Theory of Dynamic Stability** U G 3  
(718) Sp. 3 cl.  
*Prereq.: 731.*

Study of the criteria for dynamic stability. Methods of stabilizing critical mechanical systems; applications to space mechanics, structures, and vehicles.

- 754 Theory of Thin Elastic Plates** U G 3  
(725) W. 3 cl.  
*Prereq.: 521 and Math. 255 or 556.*

Derivation of the basic equations; classical solutions for rectangular and polar coordinates; approximate methods.

- 757 Elements of Inertial Guidance and Navigation** U G 3  
(727) Sp. 3 cl.  
*Prereq.: 711.*

Moment of momentum of rigid bodies; perturbing torques in the angular equations of motion of a rigid body; gyrokinematics; accelerometers; inertial platforms and surface and subsurface navigation systems; control systems dynamics; a survey of modern mathematical techniques in the study of dynamical systems.

**811\* Analytical Dynamics G 3**(817) *Sp. 3 cl.**Prereq.: 711.*

Lagrange's equations of motion for particles and rigid bodies; impulse; small oscillations; non-holonomic and dissipative systems. Hamiltonian systems; applications to intricate engineering problems.

**812+\* Energy Principles in Mechanics G 3**(830) *A. 3 cl.**Prereq.: 521 or 522 or 624 and Math. 255.*

Theoretical development of energy principles in mechanics; strain energy and complementary energy with related minimal principles; applications to problems in elasticity, dynamics, vibrations.

**831 Vibrations of Continuous Systems G 3**(807) *W. 3 cl.**Prereq.: 731 and/or concur. Math. 512 or 557.*

Equations of motions for strings, membranes, prismatical bars, and plates for various boundary conditions; approximate methods for complicated shapes; wave propagation in elastic media.

**832 Vibrations Laboratory G 3***Sp. 2 2-hr. lab.**Prereq.: 831.*

Experiments in vibrations of discrete systems, beams, plates, and shells; propagation of stress waves; material properties by dynamic measurements.

**833 Elastic Wave Propagation G 3***Sp. 3 cl.**Prereq.: 740, 831.*

Dispersion and group velocity; waves in extended media; propagation and reflection in half space; Lamb problem; waves in plates and rods by exact theory; scattering of waves.

**835 Random Vibrations G 3**(827) *A. 3 cl.**Prereq.: 831.*

Description of random processes; statistical properties of the response of mechanical systems; optimization of systems subjected to random inputs; instrumentation.

**840 Theory of Continuous Media G 3**(735) *Sp. 3 cl.**Prereq.: 740.*

Equilibrium, compatibility, and strain displacement relationships for a general continuum; constitutive equations for problems of elasticity, fluid dynamics and inelasticity.

**843 Advanced Elasticity G 3**(840) *W. 3 cl.**Prereq.: 741.*

Complex variable methods; anisotropic elasticity; three-dimensional elasticity; mixed boundary value problems; thermoelasticity.

**845\* Non-Linear Theory of Elasticity G 5***Sp. 5 cl.**Prereq.: 741 and/or concur. Math. 701.*

Finite displacements; finite strain; non-linear interaction of stress states.

**847 Theory of Plasticity G 3**(820) *A. 3 cl.**Prereq.: 740, Math. 512.*

Plastic range stress-strain relations; elasto-plastic behavior of beams, trusses; torsion of prismatic bars; plane strain; shear lines; limit analysis.

**854 Plates and Shallow Shells G 3**(824) *Sp. 3 cl.**Prereq.: 754.*

Advanced methods for the analysis of bending in thin, elastic plates having arbitrary shapes, loading, and boundary conditions; bending theory of shallow shells and problem solutions.

**855 Theory of Thin Elastic Shells G 3**(825) *W. 3 cl.**Prereq.: 754.*

Differential geometry of surface; general equations for an arbitrary shell; membrane theory, shells of revolution.

**860\* Classical Hydrodynamics G 3**(810) *Sp. 3 cl.**Prereq.: 711, Math. 512, 513, 514 or equiv.*

Basic equations and concepts of inviscid fluid flow, solutions to two- and three-dimensional problems; conformal transformations; approximate methods.

**864 Theory of Viscoelasticity G 3***W. 3 cl.**Prereq.: 740.*

Basic concepts of time dependent inelastic behavior; viscoelastic constitutive laws; correspondence principles; quasi-static and dynamic problems.

**881 Advanced Theoretical Mechanics G 2-5**(801) *Su, A, W, Sp.*

*Prereq.: 521, 410, (610) and Math. 556 or equiv. and evidence of sufficient background in area of study chosen, and permission of chairman.*

*Repeatable to a maximum of 15 cr. hrs.*

The student must register for specific subject in the areas indicated below and may register for more than one at a time.

- a. Advanced Experimental Methods
- b. Advanced Dynamics
- c. Hydrodynamics and Fluid Mechanics
- e. Applied Elasticity
- f. Strength of Materials
- g. Vibrations
- h. Plasticity
- j. Plates and Shells
- k. Continuous Media

**889 Seminar in Engineering Mechanics G 1***A, W, Sp. 1 cl.*

*Repeatable to a maximum of 6 cr. hrs.*

Lectures and discussions covering a wide range of topics, presented by staff, graduate students and guest speakers.

**999 Research in Engineering Mechanics G Arr.**(950) *Su, A, W, Sp.*

Research for thesis or dissertation purposes only.



## Engineering Survey Courses

### 101 Elements of Engineering U 1

(401) A. 1 cl.

*Prereq.: Engr. 1st yr. standing.*

The nature of the engineering profession, the work of the professional engineer, and unique characteristics of the various branches of engineering.

### 102 Elements of Engineering U 1

(402) Sp. 1 cl.

*Prereq.: 101.*

Continuation of 101.

### 501† Engineering Concepts and Methods U G 5

(601) Su. 3 cl., 2 2-hr. lab.

*Prereq.: Chem. 102 or equiv., Math. 151, Physics 112 and 113.*

*Not open to students in College of Engineering.*

The science of professional engineering; methodology of engineering analysis and design and its relation to mathematics and physical sciences.

## English

Office: 421 Denney Hall, 164 West 17th Avenue

Professors Kuhn (Chairman), Altick, Brucoli, Corbett, Derby (Emeritus), Estrich, Fullington (Emeritus), Hughey, Logan, Markels, Percival (Emeritus), Robbins, Soellner, Stevens, Utley, Walley (Emeritus), and Wilson; Associate Professors Blickle, Canzoneri, Gabel, Grigsby, Maurer, Muste, Snow (Emeritus), Varandyan, Webber, and Wheeler; Assistant Professors Baillie, Beja, Bruns, Cox, Craig (Emeritus), Dasher, Dees, Detlef, Dumble (Emeritus), England, Gardner, Gibson, Good, Graham, Jones, Kabealo, Kane (Emeritus), Kincaid, Libby, Maresca, Martin, Passe, Preston, Sena, Shapiro, Swetnam, and Woodson; Instructors Adams, Anderson, Brosch, Canary, Connor, Eder, Edwards, Faulkner, Fullmer, Haber (Emeritus), Hinshaw, Hoch, Lord (Emeritus), Rickard, Rosengard, Sucheston, Sullivan, Tucker, and Vogel

### ENGLISH FOR FOREIGN STUDENTS

Course credit may not be counted toward graduation.

### 071 General English for Foreign Students U 5

(406) A, W, Sp.

Review of English structure for foreign students; proceeds from basic oral aural patterns to their application in writing. *Preston, Director.*

### 072 Advanced English for Foreign Students U 5

(407) Su, A, W, Sp.

Develops academic and social effectiveness in the use of advanced patterns in written and spoken English. *Preston, Director.*

### 073 Special Problems in English for Foreign Students U 3

(408) Su, A, W, Sp.

Attention is given to the special academic problems of foreign students; concentrated work on idiomatic structure and diction in writing reports, themes, examinations, and theses. *Preston, Director.*

### ENGLISH COMPOSITION

No prerequisite except as established by testing and course sequence.

### 101 Composition and Reading U 3

(416) Su, A, W, Sp.

*Not open to students with credit for 301.*

Training in the fundamentals of expository writing, as illustrated in the student's own writing and in the essays of professional writers. *Corbett, Director.*

### 102 Composition and Reading U 3

(417) Su, A, W, Sp.

*Prereq.: 101.*

*Not open to students with credit for 104 or 301.*

Continued training in expository writing with emphasis on the logical elements in exposition. *Corbett, Director.*

### 103 Composition and Reading U 3

(418) Su, A, W, Sp.

*Prereq.: 102.*

*Not open to students with credit for 105 or 301.*

Continued training in expository writing, approached specifically through the study of imaginative literature. *Corbett, Director.*

### 104 Composition and Reading U 3

(419) A.

*Prereq.: Em credit for 101.*

*Not open to students with credit for 102 or 301.*

*Designed for proficiency students only, as a substitute for 102.*

Training in expository writing, with emphasis on the logical elements in exposition. *Corbett, Director.*

### 105 Composition and Reading U 3

(420) W.

*Prereq.: 104 or Em credit for 102.*

*Not open to students with credit for 103 or 301.*

Continued training in expository writing, approached specifically through the study of imaginative literature. *Corbett, Director.*

### 195 Freshman Honors Seminar U 3

W, Sp. 3 cl.

*Prereq.: 102 or 104; cumulative point-hour ratio of 3.0 or better, with 3.5 or better in Engl. and permission of department.*

*Substitute for 103 or 105.*

Studies in thematically related literary works; discussion and guided writing on basic questions about the nature of literature; topic varies quarterly. *Grigsby, Director.*

### GENERAL PREREQUISITES FOR COURSES NUMBERED 200

Unless otherwise indicated, the prerequisites for 200 courses are English 103 or 105.

### 220 Introduction to Shakespeare U 5

(550) Su, A, W, Sp.

*Not open to students with credit for 262. Students majoring in Engl. in College of Humanities should elect 520 instead of 220.*

Intensive study of selected plays of Shakespeare designed to give an understanding of drama as theatrical art and as an interpretation of fundamental human experience. *R. Jones, Director.*

**240 Masters of Modern Literature U 5**  
(540) Su, A, W, Sp.

An introduction to modern poetry, drama, and fiction through the study of five or six authors: Shaw, O'Neill, Frost, Conrad, Eliot, Robinson, Forster, Yeats, and Porter. *Estrich, Director.*

**260 Introduction to Poetry U 5**  
(520) Su, A, W, Sp.

A course designed to help students to understand and appreciate poetry through intensive study of a representative group of poems. *Wheeler, Director.*

**261 Introduction to Fiction U 5**  
(521) Su, A, W, Sp.

Intensive study of a number of short stories and novels to acquaint the general student with some of the important themes and techniques of fiction. *Beja, Director.*

**262 Introduction to Drama U 5**  
(555) A, W, Sp.

*Not open to students with credit for 220.*

A critical analysis of selected dramatic masterpieces from Greek antiquity to the present, designed to clarify the nature and major achievements of western dramatic art. *Baillie and Graham.*

**265 Narrative Writing U 5**  
(507) A, W.

*Prereq.: Permission of instructor.*

Guided practice in the writing of short fiction. *Canzoneri, Director.*

**266 Verse Writing U 5**  
(508) Sp.

*Prereq.: Permission of instructor.*

The technique of writing verse. The students will write in various forms and meters and study the works of established poets as models.

**280 The English Bible U 5**  
(529) A, Sp.

A study of the King James version of the Bible with respect to literary questions, historical development, and religious concepts. *Gabel.*

**290 Masterpieces of American Literature U 5**

(510) Su, A, W, Sp.  
*Not open to students with credit for (511), 551, 552, 553.*

A critical study of some major American writers chosen from among the following: Poe, Hawthorne, Emerson, Thoreau, Melville, Whitman, Dickinson, Twain, James, Frost, Eliot, Faulkner and Hemingway. *Brucoli, Director.*

**293 Masterpieces of English Literature U 5**

(563) Su, A, W, Sp.

Designed to lead to an appreciative understanding of some great poetry and prose written before 1675; emphasis upon Beowulf, Chaucer, Spenser, Milton, and selected lyrics. *Webber, Director.*

**294 Masterpieces of English Literature U 5**

(564) Su, A, W, Sp.

Selections of prose and poetry will be drawn from works of major British writers from 1675 to 1900. *Martin, Director.*

**296 Sophomore Honors Seminar U 5**  
A. 5 cl.

*Prereq.: Cumulative point-hour ratio of 3.00 or better, with 2.5 or better in Engl., and permission of department.*

Studies in the relationship of works of literature to their general intellectual contexts, involving such topics as Deism, Marxism, Primitivism, Freudian psychology. Topic varies quarterly. *Grigsby, Director.*

**299 English Honors Pro-seminar U 5**  
W, Sp. 5 cl.

*Prereq.: Cumulative point-hour ratio or 3.00 or better, with 2.5 or better in Engl. and permission of department.*

An introduction to the materials and methods of literary study through intensive reading in one major English or American author. Topic varies quarterly. *Grigsby, Director.*

**301 Informative Writing U 5**  
(505) Su, A, W, Sp.

*Prereq.: 3rd yr. standing and 103 or equiv.*

*Not open to students with credit for 302.*

Intensive advanced training in the art of informative writing. *Passe, Director.*

**302 Critical Writing U 5**  
(506) Su, A, W, Sp.

*Prereq.: 103 or equiv., 3rd yr. standing. Engl. majors only.*

*Not open to students with credit for 301.*

Intensive practice in writing various kinds of analyses of literary texts. *Gibson, Director.*

**305 Technical Writing U 3**  
(519) A, W, Sp. 2 cl., 1 hr. conf.

*Prereq.: 3rd yr. standing in the Bachelor of Science curricula.*

Training in practical writing for industry, business, and research, with emphasis on the special requirements and techniques for the professional report. *Blickle, Director.*

### GENERAL PREREQUISITES FOR COURSES NUMBERED 500

These courses may provide graduate credit only in departments other than English. Prerequisites: 15 hrs. of courses in English on the 200 level, or 10 hrs. in English and 10 in specified allied departments.

**513 Introduction to Medieval Literature U G 5**

(654) Su, W.

The study of masterpieces from the Middle Ages, chosen for their values in interpreting medieval culture as well as for their independent literary worth. *Estrich.*

**520 Shakespeare U G 5**  
(676) A, W, Sp.

A critical consideration of the art, personality, and achievement of Shakespeare in the light of Renaissance and modern significance. *Cox, Robbins, and Soellner.*

**522 Early Seventeenth Century Literature U G 5**

(671) A, Sp.

A study of the lyric modes of Jonson and Donne, the principal achievements in English literary prose, and the works of John Milton. *Jones and Webber.*



**531 The Age of Wit and Satire U G 5**

(635) *W.*

The skeptical mind of the Early Enlightenment as shown in lyric and satiric verse, essays, and drama, from Dryden to Pope. *Maurer.*

**535 Literature of the Eighteenth Century U G 5**

(636) *A, Sp.*

The ideas and artistry of the Age of Reason as reflected in the work of major figures; Swift, Pope, Fielding, Sterne, Boswell, Johnson, Blake. *Sena.*

**540 Romantic Poetry U G 5**

(641) *A, Sp.*

English literary and intellectual romanticism as seen in the poetry of Wordsworth, Coleridge, Byron, Shelley, and Keats, and selected critical documents of the period. *Mitchell and Sweetnam.*

**541 Victorian Poetry U G 5**

(642) *Su, W.*

Readings in the poetry of Tennyson, Browning, Arnold, Swinburne, Rossetti, Meredith, Hopkins, and Hardy, as seen against the background of Victorian ideas and literary taste. *Shapiro.*

**551 The American Renaissance in Literature U G 5**

(609) *Su, W.*

*The readings of this course do not duplicate those of 290.*

An introduction to the major American writers of the mid-nineteenth century: Poe, Hawthorne, Melville, Emerson, Thoreau, Whitman. *Markels.*

**552 American Literature, 1865-1914 U G 5**

(610) *A, W, Sp.*

Studies in fiction and poetry emphasizing such major figures as Twain, Howells, James, Dickinson, Robinson, Crane, Dreiser, and Willa Cather. *Passes.*

**553 Twentieth Century American Writers U G 5**

(615) *Su, A, W, Sp.*

A study of the development of American literature after World War I, with emphasis on the major poets and novelists. *Beja, Grigsby, Libby, and Woodson.*

**565† The Writing Laboratory U G 5**

(648) *W. 3 cl., conf.*

*Prereq.: Permission of instructor.*

Detailed analysis in conference and class discussion of work presented by students. Six novels are discussed as types in modern writing.

**570 English Usage U G 5**

(625) *Su, A, W, Sp.*

*Prereq.: The general prerequisites for 500 courses as listed above, or Jour. 641 or 601.*

Usage and stylistic variety in written and spoken English, for students interested in writing and teaching. *Adams, Kabealo, and Preston.*

**GENERAL PREREQUISITES FOR COURSES  
NUMBERED 600**

These courses may provide graduate credit in all departments. Prerequisites: 15 hrs. of courses in English on the 500 level, or 10 hrs. in English and 10 hrs. on the 300-500 level in specified allied departments.

**615 Introduction to Chaucer U G 5**

(659) *Su, W.*

A close study of *Troilus and Criseyde* and *The Canterbury Tales* as introduction to the artist and his period. *Estrich and Zacher.*

**621 The English Renaissance U G 5**

(574) *Su, Sp.*

A study of Tudor prose and poetry as they exemplify literary art and as they reflect the creative and inquiring temper of the age. *Cox and Dees.*

**624 English Drama: Medieval and Renaissance U G 5**

(677) *Su, A.*

*Prereq.: 220 or 262 or equiv.*

A study of English popular drama from its origin to 1642, with special emphasis upon the evolution of dramatic concepts and theatrical art. *Baillie and Robbins.*

**634 English Drama: Restoration and Eighteenth Century U G 5**

(678) *W.*

*Prereq.: 220 or 262 or equiv.*

A study of English drama from 1660 to 1800: Restoration heroic drama and wit comedy, eighteenth century sentimental drama, the comedy of Goldsmith and Sheridan. *Robbins.*

**641 The Nineteenth Century English Novel U G 5**

(656) *Su, A, Sp.*

Readings in a group of major novelists, such as Austen, Dickens, Thackeray, and others, with special emphasis upon social and humanistic values. *Logan, Kincaid, and Shapiro.*

**642 Nineteenth Century Prose U G 5**

(640) *A, Sp.*

Selections from the principal romantic and Victorian non-fictional prose writers, read both as literary art and as documents of contemporary thought. *Bruns.*

**643 Twentieth Century British Writers U G 5**

(614) *A, Sp.*

A study of the development of British literature from the end of the nineteenth century to the present, with emphasis on the major poets and novelists. *Beja and Eder.*

**649 Modern Drama U G 5**

(670) *Su, Sp.*

An historical and critical examination of the major developments, personalities, and achievements in the drama of Europe and America since the advent of Ibsen. *Canzoneri and Graham.*

**665 A Writer's Approach to Fiction U G 5**  
(648) W.*Prereq.: 265 or equiv. or permission of instructor.*

The writing and analysis of fiction. Although the emphasis is upon student writing, there will be reading and discussion of the works of contemporary writers. *Canzoneri.*

**667† Playwriting U G 5**  
(648) A.*Prereq. or concur.: One of the following: 520, 624, or 649.*

Elementary laboratory course in playwriting; methods of play analysis with attention to dramatic technique; an historical consideration of the major forms of drama. *Canzoneri.*

**670† Folklore U G 5**  
(620) W.

A critical examination of some of the outstanding English and American folksongs and international folk tales. Lectures and class discussions will be supplemented by recordings.

**671 Structure of English U G 5**  
(626) A.

An investigation of the linguistic structure of modern English. *Preston.*

**672 History of the English Language U G 5**  
(627) W.*Prereq.: The general prerequisites for 600 courses as listed above, or Jour. 641 or 601.*

A study of the historical development of the English language and the internal and external influences which have determined its characteristics. *Gardner.*

**676 History of Literary Criticism U G 5**  
(621) Sp.

Intensive study of the basic texts in literary criticism from Plato to T. S. Eliot. *Wheeler.*

**680 Literary and Cultural Heritage U G 5**  
of the Middle East  
(689) W.

An introduction to Assyro-Babylonian, Arabic, and Persian literature in their historical and cultural settings. *Varandyan.*

**693 Individual Studies in English U G 1-5**  
(701) Su, A, W, Sp.*Prereq.: Senior standing and permission of Department Graduate Committee.*

With approval of participating faculty member and Departmental Graduate Committee, students may register for individual directed study under this number for work not normally offered in courses.

**699 Senior Seminar and Tutorial U 5**  
(690) Su, A, W, Sp.*Prereq.: Engl. majors in their last qtr.*

A reading course designed to unify the student's knowledge of English and American literature and to clarify his understanding of problems of interpretation and criticism. *Shapiro, Director.*

**777 Teaching of English to Speakers U G 3**  
of Other Languages I

W. 3 cl.

*Prereq.: 672, Ling. 600, 601; concur. Speech 777.*

An examination of the theories and approaches to second language teaching, with emphasis upon specific problems in teaching written English. *Preston.*

**778 Teaching of English to Speakers U G 3**  
of Other Languages II

Sp. 3 cl.

*Prereq.: 777, Speech 777; concur. Speech 778.*

A continuation of 777.

**783† Honors Course U G 3-5**  
(705) A, W, Sp.*Prereq.: 4th yr. standing; the record of "A" in at least half of his Engl. courses and an average of "B" in all of his courses; the permission of the professor under whose supervision the work is to be completed.*

Open only to candidates for distinction in Engl. who have in their junior year completed with high grades a program approved by the Committee on Honors.

*Repeatable to a maximum of 15 cr. hrs.*

A program of reading arranged for each student, with individual conferences, reports, and honors thesis. *Grigaby, Director.*

**GENERAL PREREQUISITES FOR COURSES**  
NUMBERED 800

Prerequisites: 30 hrs. of courses in English or 20 hrs. in English and 25 hrs. in specified allied disciplines.

**810\* Introduction to Old English U 5**  
Language and Literature

(749) A. 5 cl.

The reading of Old English prose with special attention to the language and to cultural background. *Gardner.*

**811†\* Old English Poetry U 5**  
(751) Sp.*Prereq.: 810 or equiv.*

A critical reading of the major Old English poems, form, content, and style. *Estrich.*

**812\* Beowulf U 5**  
(754) W.*Prereq.: 811 or equiv.*

A close study of the text of *Beowulf* and its background. *Estrich.*

**813\* Introduction to Middle English U 5**  
Language and Literature

(746) Sp.

A study, with some cultural background, of important Middle English writings, in their original form. *Estrich.*

**814\* Studies in Early English U 5**  
Literature

(747) A.

*Prereq.: 811, 813, or 615 or equiv.*

A detailed and critical study of a medieval author or topic, exclusive of Chaucer. *Stevens.*



- 815\* Studies in Chaucer** G 5  
(757) *Su, W.*  
A critical study of some aspect of Chaucer's work in depth. *Gardner and Stevens.*
- 820 Shakespeare** G 5  
(776) *Su, A.*  
An intensive consideration of selected problems in the scholarly study of Shakespeare. *Cox and Soellner.*
- 821\* Studies in Renaissance Prose** G 5  
(772) *A.*  
The evolution of literary prose from More to Milton as seen in representative works which are related critically to rhetorical theory and significant cultural forces. *Hughey.*
- 822\* Studies in Renaissance and Early Seventeenth Century Poetry** G 5  
(771) *W.*  
A close study of significant verse of late Sixteenth and early Seventeenth centuries. *Jones.*
- 823\* Spenser** G 5  
(773) *Sp.*  
A study of Spenser's poetry, its literary significance and its relation to foreign, classical, and native English poetic traditions. *Hughey.*
- 830 Milton** G 5  
(775) *Su, A, Sp.*  
A critical study of the poetry and prose of John Milton, viewed against his social and literary background. *Cox, Robbins, and Webber.*
- 831 Dryden** G 5  
(735) *W.*  
A detailed study of the poems, plays, and essays of John Dryden, as exemplifying the principles and practices of the Early Enlightenment. *Maurer.*
- 832†\* Swift** G 5  
(737) *A.*  
An intensive critical study of Swift's work and its relation to the intellectual and political movements of the Age of Reason.
- 833\* Pope** G 5  
(736) *A.*  
Pope's poems considered formally and as representative documents of his age. *Maurer.*
- 835 Studies in the Eighteenth Century** G 5  
(738) *W.*  
Intensive work in an important aspect of eighteenth century literature or thought. *Gibson.*
- 840 Studies in Romantic Poetry and Poetics** G 5  
(745) *Su, Sp.*  
Literary romanticism, as represented by one or more of the poets (Blake, Coleridge, Wordsworth, Byron, Shelley, Keats), in relation to contemporary intellectual and political movements. Topic varies year to year. *Logan.*
- 841 Studies in Victorian Poetry** G 5  
(742) *Su, W.*  
The artistic values of the poetry, its place in the romantic tradition, its reflection of the contemporary intellectual and social milieu. Topic varies each year. *Kincaid and Loucks.*
- 842\* Studies in Nineteenth Century Prose** G 5  
(744) *A.*  
Selected non-fictional prose, read as examples of literary art and as documents of the age's religious, political, social, and aesthetic thought. Topic varies from year to year. *Martin.*
- 847 Twentieth Century Poetry** G 5  
(727) *A, Sp.*  
*Prereq.: Acquaintance with the major poets studied in 553 and 643 is assumed.*  
An intensive study of a representative body of modern poetry, with emphasis on several major poets of England and America. *Muste and Wheeler.*
- 848 Studies in Twentieth Century Fiction** G 5  
(728) *Su, W.*  
*Prereq.: Acquaintance with modern continental novelists is recommended.*  
Tendencies in modern fiction as seen in the works of such major figures as Proust, Joyce, Mann, D. H. Lawrence, Virginia Woolf, Hemingway, and Faulkner. *Brucoli and Grigsby.*
- 851 Studies in the American Renaissance** G 5  
(708) *Su, W.*  
*Prereq.: 551 or equiv.*  
An intensive study of several authors drawn from the following list: Cooper, Poe, Hawthorne, Melville, Emerson, Thoreau, Whitman. *Colacurcio.*
- 852 Studies in American Literature, 1865-1914** G 5  
(709) *A, Sp.*  
*Prereq.: 552 or equiv.*  
An intensive study of several major authors of the period, including Twain and James. *Brucoli.*
- 865 The Writing of Fiction** G 5  
(717) *Sp.*  
*Prereq.: Submission of a manuscript to instructor before enrollment. 265 and 665 are recommended.*  
A course for those who have already demonstrated some proficiency in the writing of fiction. *Canzoneri.*
- 871 Principles and Methods of Linguistic Analysis** G 3  
(702) *Su.*  
*Prereq.: Permission of director.*  
The study of the principal methods of the analysis of the English language.
- 872 Structural Analysis of English Expository Prose** G 3  
(703) *Su, A.*  
*Prereq.: Permission of director.*  
*Corbett.*

**873 Principles and Methods of Literary Analysis G 3**

(704) Su.

*Prereq.: Permission of director.*

Principles and methods of the study of English poetry, drama, and prose fiction.

**876 Studies in Critical Theory G 5**

(710) W.

A review of theory and practice in some of the principal forms of literary analysis. *Wheeler.*

**877\* Linguistics and English G 5**

(755) W.

An advanced approach to linguistics, language and culture, phonetics, the history and structure of English, and the teaching of English language and literature. *Stevens.*

**878\* Linguistics and English G 5**

(756) Sp.

*Prereq.: 877.*

Continuation of 877.

**880 Studies in English or American Literature G 5**

(715) Su, A, W, Sp.

*Prereq.: Permission of chairman of Department Graduate Committee.*

Under this number, the Department occasionally offers an intensive course on some phase of English or American literature.

**GENERAL PREREQUISITES FOR COURSES  
NUMBERED 900**

Prerequisites: 15 hrs. of English on the 800 level.

**910†\* Studies in the Medieval Period G 5**

(852) Sp.

Individual research in a major aspect of Old and Middle English literature. *Utley.*

**911\* Studies in the Medieval Period G 5**

(853) Su.

*Prereq.: 910*

Continuation of 910.

**912\* Research in Chaucer G 5**

(854) W.

Individual research in various aspects of medieval literature, with Chaucer as center. *Utley.*

**913\* Research in Chaucer G 5**

(855) Sp. 5 cl.

*Prereq.: 912.*

A continuation of 912.

**920†\* The English Renaissance G 5**

(877) W.

Reading and research in non-dramatic literature of the English Renaissance. Topics may vary from year to year. *Hughey.*

**921†\* The English Renaissance G 5**

(878) Sp.

*Prereq.: 920.*

A continuation of 920.

**922\* Studies in the Age of Shakespeare G 5**

(875) W.

Exploration of the problems, materials, and methods relevant to a scholarly study of Shakespeare's work and cultural environment, culminating in individual research. *Soellner.*

**923\* Studies in the Age of Shakespeare G 5**

(876) Sp.

*Prereq.: 922.*

Continuation of 922.

**933†\* Research in the Restoration Period G 5**

(837) A.

Individual research in Restoration literature, Dryden to Pope; oral and written reports. *Maurer.*

**934†\* Research in the Restoration Period G 5**

(838) W.

*Prereq.: 933.*

Continuation of 933.

**935\* Studies in Eighteenth Century Literature G 5**

(835) Sp.

Problems in the literature and ideas of the Age of Reason. *Kuhn.*

**936\* Studies in Eighteenth Century Literature G 5**

(836) Su.

*Prereq.: 935.*

Continuation of 935.

**940 Studies in Nineteenth Century Literature G 5**

(842) A.

Reading and research in the literary production of the century and its intellectual and social backgrounds. Topic varies from year to year. *Altick.*

**941 Studies in Nineteenth Century Literature G 5**

(843) W.

*Prereq.: 940.*

Continuation of 940.

**950 Studies in American Literature and Cultural History G 5**

(865) W.

Individual research in problems in American literature. *Markels.*

**951 Studies in American Literature and Cultural History G 5**

(866) Sp.

*Prereq.: 950.*

Continuation of 950.

**980 Bibliography and Method G 5**

(880) A.

A course for the advanced graduate student in the methods and tools of literary research. *Altick.*



- 982 Textual Criticism and Editing** G 5  
(881) W.  
Prereq.: 980.

Evaluation of literary editorial methods, past and present; training in skills requisite to the textual critic and scholarly editor; practice in textual editing. *Hughey*.

- 999 Research in English** G Arr.  
(950) Su, A, W, Sp.  
Research for dissertation purposes only.

## Entomology

Office: 101 Botany and Zoology Building, 1735 Neil Avenue

Professors Wharton, Borror, Briggs, Davidson, Fisk, Coleman, Holdsworth, Polivka, Rings, Rothenbuhler, Slesman, Stephen, Treece, Triplehorn, Venard, and Weaver; Associate Professors Blair, Britt, Forsythe, Johnston, Knulle, R. L. Miller, Niemczyk, Shambaugh, Stairs, Steinhauer, and Valentine; Assistant Professors Barry, Collins, Nault, and Still.

Note: Required Seminar, see Zool. 880.

- 200 General Entomology** U 5  
(550) A, W, Sp. 3 cl., 2 2-hr. lab.  
Prereq.: Bot. 102, Zool. 101 or equiv.

The biology and habits of insects, the use of insects in scientific research, and the interrelations of beneficial and harmful species with man. *Triplehorn and Valentine*.

- 361 Apiculture** U 5  
Sp. 3 cl., 2 2-hr. labs.

The principles of management of honeybees in the production of honey, wax, package-bees, and queens and in pollinating crops of economic importance. *Stephen*.

- 460 Economic Entomology** U 5  
(551) A, W, Sp. 5 cl.  
Prereq.: Bot. 102 and Zool. 101 or equiv.

A basic course dealing with the economic aspects, analyzing and solving of common insect problems. *Davidson and Holdsworth*.

- 500 Entomology for Biology Majors** U G 5  
(650) Su. 3 cl., 2 2-hr. labs.  
Not open to students with credit for 200.

The biology, morphology, metamorphosis and habits of insects. Methods of collecting, preserving, culturing and identifying the more important families.

- 561 Horticultural Entomology** U 3  
(566) Sp. 3 cl.  
Prereq.: 460 and 10 additional cr. hrs. 200 level or above in Entom. or Hort.

A detailed study of insects and mites attacking horticultural crops. *Davidson*.

- 602 Biology of the Honey Bee** U G 3  
(608) Sp. 3 cl.  
Prereq.: 200, Biol. 630 or equiv.

The behavior, social organization, morphology, physiology, reproduction, diseases, and genetics of the honey bee studied from a comparative and evolutionary viewpoint. *Rothenbuhler*.

- 611 Field Entomology** U G 4  
(670) Su (1st Term). 3 all-day cls.  
Given only at the Franz Theodore Stone Laboratory.

This course deals primarily with collecting, identification and field methods. Field trips are made to various islands of Lake Erie and the mainland.

- 612† Aquatic Entomology** U G 4  
(671) Su (2nd Term). 3 all-day cls.  
Prereq.: 611 or equiv.

A course designed for preparation in the teaching of biology or research on aquatic resources. Taxonomy and ecology of aquatic larvae are stressed. *Britt*.

- 621 External Morphology of Insects** U G 5  
(651) A. 2 cl., 6 hrs. lab.  
Prereq.: 200 or equiv.

A study of the comparative external morphology of insects with special emphasis on evolutionary trends and on taxonomic application or morphology. *Borror*.

- 631 Insect Physiology** U 5  
(600) A. 3 cl., 2 2-hr. labs.  
Prereq.: 200 or equiv. and Chem. 231, 232 or equiv.

The general physiology of insects and other arthropods. The laboratory will stress the use of insects to demonstrate fundamental physiological processes. *Fisk*.

- 660 Advanced Economic Entomology** U G 5  
(640) A. 3 cl., 2 2-hr. labs.  
Prereq.: 460 and Bot. 470 or equiv.

The principles of insect control. Field and laboratory studies will be made of major insect control problems. *Davidson*.

- 661 Medical Entomology** U G 5  
(655) Sp. 3 cl., 2 2-hr. labs.  
Prereq.: Microbiol. 607 or Zool. 610 or equiv.

A consideration of the recognition characteristics, biology, and control of insects and other arthropods of importance to the health of man, livestock, and wildlife. *Venard*.

- 662 Principles of Insect Toxicology** U G 5  
(653) W. 3 cl., 2 2-hr. labs.  
Prereq.: 431 or equiv.

Deals with physiochemical properties and physiological action of insecticides, miticides, and adjuvants. Methods of securing, evaluating, and presenting toxicological data are stressed. *Collins*.

- 670 General Acarology** U G 4  
A. 1 cl., 4-hr. lab.

An introduction to the morphology, development, and general biology of mites; laboratory consists of a taxonomic review of the families of Acari. *Johnston*.

- 693 Individual Studies** U 2-5  
(701) Su, A, W, Sp. G 2-10  
Prereq.: Permission of instructor.

Individual work in the field of the chosen problems.

- Apiculture and biology of the honey bee. *Rothenbuhler and Stephen*.
- Immature insects. *Britt and Valentine*.
- Insects causing or transmitting diseases to animals. *Holdsworth, Davidson, and Venard*.

- d. Insects causing or transmitting diseases of plants. *Briggs, Davidson, and Holdsworth.*
- e. Insect control. *Davidson and Holdsworth.*
- f. Insect ecology. *Borror, Briggs, Britt, and Triplehorn.*
- g. Insect morphology. *Borror and Fisk.*
- h. Insect physiology and toxicology. *Fisk, Shambaugh, and Collins.*
- i. Systematics. *Borror, Davidson, Johnston, Triplehorn, and Valentine.*
- j. Insect behavior. *Fisk, Holdsworth, and Rothenbuhler.*
- k. Insect behavior. *Fisk, Holdsworth, and Rothenbuhler.*
- l. Field and Experiment Station Problems. *Barry, Davidson, Forsythe, Nault, Niemczyk, Polivka, Rings, Shambaugh, Sleesman, and Treece.*
- m. Acarology. *Johnston, Knulle, and Wharton.*
- n. Insect pathology and biological control. *Briggs and Stairs.*

### 694 Special Group Studies U G 2-5 (701) Su, A, W, Sp.

*Prereq.: Permission of instructor.*

Group work in the field of the chosen problem (See topics in 693).

### 751\* Systematic Entomology U G 5 (705) W. 2 cl., 6 lab. hr.

*Prereq.: 621.*

A survey of all orders except Diptera, Lepidoptera, and Hymenoptera, with emphasis on the determination of insects to family and beyond; collecting and preserving insects. *Borror.*

### 752+\* Systematic Entomology U G 5 (706) W. 2 cl., 6 lab. hrs.

*Prereq.: 621.*

Continuation of 751, covering the Diptera, Lepidoptera, and Hymenoptera. *Borror.*

### 753+\* Immature Insects U G 5 (712) A. 1 cl., 4 2-hr. lab.

*Prereq.: 751 and 752 or equiv. and permission of instructor.*

A survey of immature stages of insects with emphasis on the anatomy and taxonomy of holometabolous larvae. *Valentine.*

### 802+\* Research Methods: Living Insects G 5 (816) Sp. 3 cl., 2 2-hr. labs.

*Prereq.: Permission of instructor.*

Deals with current field and laboratory research methods of trapping, sampling, handling, and rearing insects; conducting life history studies; and measuring environment factors. *Fisk.*

### 821\* Internal Morphology of Insects G 5 (817) Su. 2 cl., 3 2-hr. labs.

*Prereq.: 621.*

Deals with the internal structures of insects, including anatomy, function, histology, embryology, and metamorphosis. Laboratory includes preparation of permanent microscopic slides of insect tissues. *Fisk.*

### 831 Advanced Insect Physiology G 5 (850) W. 2 cl., 2 3-hr. labs.

*Prereq.: 431 and Biochem. 511 and 521 or equiv.*

Topics include insect integument, water balance, excretion, digestion, nutrition, respiration, growth and metamorphosis. The project type laboratory provides experience in techniques of insect physiology. *Fisk.*

### 841 Biological Control G 5 (814) W. 3 cl., 2-hr. lab.

*Prereq.: Permission of instructor.*

The principles of biological control with particular reference to insects. *Briggs.*

### 870+\* Medical-Veterinary Acarology G 4 Sp. 1 cl., 4-hr. lab.

*3 hrs. cl.-lab. daily (Su. 3 weeks).*

The mites associated with man, domestic animals, and wildlife, stressing their ecology and behavior in relation to transmission of viral, rickettsial, bacterial, and protozoan diseases. *Johnston.*

### 871\* Agricultural Acarology G 4 Sp. 1 cl., 4-hr. lab.

*3 hrs. cl.-lab. daily (Su. 3 wks.).*

An intensive review of the mites associated with crops, ornamental plants, and stored food products with emphasis on taxonomy and ecology of these animals. *Johnston.*

### 896 Interdepartmental Seminar G 1-3 in Polar and Alpine Studies

*Sp.*

*(See under Interdepartmental Seminars)*

### 897 Interdepartmental Seminar G 1 in Natural Resources

*A, W, Sp.*

*(See under Interdepartmental Seminars)*

### 999 Research in Entomology G Arr. (950) Su, A, W, Sp.

Research for thesis and dissertation purposes only.

## Fine Arts

Office: 146 Fine Arts Building, 126 North Oval Drive

**Professors** Hausman (Director), Barkan, Bogatay, Chafetz, Csuri, Ecker, R. Gatrell, King, Ludden, Severino, Sherman, and Wood; **Associate Professors** Baigell, Baughman, Black, Clipson, Cope, Freeman, Friley, M. Gatrell, Hall, Hatchett, Hewett, Kitts, Krumm, Melnikas, Mendez, Patton, and Zimmer; **Assistant Professors** Chapman, Efland, Fetzer, Fitzpatrick, Greaves, Hebner, Katz, Krueger, McWhinnie, Mealy, Mitchell, Rubright, Smith, Templeton, Wallschlaeger, and Wynne; **Instructors** Hasselle, Herzog, Keyes, Kunin, Petersen, Sandberg, Schwartz, Tetz, and Volkersz.

### 110 Historic Styles in Art U 3 (497) Su, A, W, Sp. 3 cl.

*Not open to juniors, seniors, or students with credit for 111.*

An introduction to the principal artistic styles of the Western world.

### 111 Introduction to Art U 3 (494) Su, A, W, Sp. 3 cl.

*Not open to juniors, seniors or students with credit for 110.*

A study of meaning of visual form and imagery in architecture, sculpture, and painting.



**140 Introduction to Ceramic Art U 3**  
(484) Su, A, W, Sp. 1 cl., 6 lab. hrs.

An introduction to pottery making; laboratory practice in building pottery by hand, with short lectures giving a broad survey of the ceramic arts.

**170 Drawing and Fine Arts Orientation U 5**

(421) A, Sp. 5 2-hr. lab. plus 1 lec.

Introduction to studio activity; laboratory experience, with emphasis on drawing and design; lectures and discussion about fields of specialization in fine arts.

**171 Drawing U 5**

(423) A, W. 5 2-hr. lab.

Prereq.: 170 or permission of instructor.

The use of various drawing media with continuation of the underlying principles as utilized in 170; laboratory and field problems.

**175 Painting U 5**

(500) W, Sp. 5 2-hr. lab.

Prereq.: 171.

Emphasis on the use of color, drawing, and design in the development of a personal idiom of expression; opaque media; laboratory and field problems.

**180 Sculpture U 5**

(461) Su, A, W, Sp. 5 3-hr. lab.

Prereq.: 170.

Not open to students with credit for 581.

An introduction to the principles of sculpture, emphasizing basic forming processes and materials.

**190 Introduction to Fine Art Activities U 3**

(401) Su, A, W, Sp. 1 cl., 4 lab. hrs.

Not open to candidates for the degrees B.F.A. and B.Sc. in Ed. with Fine Arts as a major, nor to students with credit for 170 or 290.

An investigation of visual form, its perception, development, and use through studio experience.

**200 Orientation to Art Education U 3**

(459) Sp. 3 cl.

Prereq.: 2nd yr. standing.

Historical introduction to the art education program, with attention to the orientation and professional preparation of an art teacher.

**210 History of Western Art I U 3**

(501) A, W, Sp. 3 cl.

Prereq.: 3rd yr. standing or 110 or 111.

A survey of Ancient and Early Medieval Art.

**211 History of Western Art II U 3**

(502) Su, A, W, Sp. 3 cl.

Prereq.: 3rd yr. standing or 110 or 111.

A survey of Romanesque, Gothic, Renaissance, and Mannerist Art.

**212 History of Western Art III U 3**

(503) Su, A, W, Sp. 3 cl.

Prereq.: 3rd yr. standing or 110 or 111.

A survey from Baroque through Contemporary Art.

**213 History of Oriental Art U 3**

(509) A, Sp. 3 cl.

Prereq.: Junior standing or 110 or 111.

A survey of Far Eastern Art: India, China, and Japan.

**240 Elementary Ceramic Art U 5**

(490) A, W, Sp. 1 cl., 9 lab. hrs.

Introduction to the art phases of the ceramic field; laboratory practice in the hand forming process.

**242† Ceramic Laboratory U 3**

(587) A, W, Sp. 9 lab. hrs.

Prereq.: 140 or 240 or permission of instructor.

Specific problems in the ceramic art field dealing with form, and processes such as the potter's wheel.

**244 Ceramic Art Laboratory U 5**

(491) Su, A, W, Sp. 15 lab. hrs.

Prereq.: 140 or 240 or permission of instructor.

Introduction to more involved forming processes such as the potter's wheel, model and mold making.

**245 Intermediate Ceramic Laboratory U 5**

(590) A, W, Sp. 15 lab. hrs.

Prereq.: 244 or permission of instructor.

Laboratory practice in designing ceramic wares, with emphasis on the use of the potter's wheel.

**246 Intermediate Ceramic Laboratory U 5**

(592) A, W, Sp. 15 lab. hrs.

Prereq.: 245 or permission of instructor.

**250 Fundamentals of Design U 3**

(577) A. 3 2-hr. lab.

Prereq.: 190 or 290 or permission of instructor.

The application of principles of design in the decorative arts; study of textiles, home furnishings, and other phases of contemporary design.

**251 Design I U 5**

(431) A. 5 3-hr. lab.

Prereq.: Design major.

An introduction to the theory, methods and practices of design with an emphasis upon methods of inquiry, techniques, and procedures used in design problem solving.

**252 Design I U 5**

(482) W. 5 3-hr. lab.

Prereq.: 251.

A continuation of 251 with emphasis upon the technical, analytical, and organizational skills required in the design process.

**253 Design I U 5**

(433) Sp. 5 3-hr. lab.

Prereq.: 252.

A continuation of 252 with emphasis upon three dimensional models, color themes, and applications.

**258 Typography U 3**

(558) A, W, Sp. 1 cl., 3 2-hr. lab.

Prereq.: 170.

The principles of typography and their application.

**260 Orientation to Design and Planning U 3**

(530) Sp. 3 cl.

*Prereq.: Design major.*

Introduction to the theory, practice and history of design for all majors in the Product Design, Space and Enclosure Design, and Visual Communication Design curricula.

**270 Water Color Painting U 3**

(407) Sp. 2 3-hr. lab.

*Prereq.: 171.**Not open to majors in Fine Arts.*

Painting from still life, models, and landscape; lectures laboratory work, and criticisms.

**272 Life Drawing U 5**

(505) Su, A, W, Sp. 5 3-hr. lab.

*Prereq.: 171.*

Drawing from the human figure, using a variety of media; discussion of drawing as related to important styles; laboratory problems and field trips.

**273 Oil Painting U 5**

(528) Su, A, W, Sp. 5 3-hr. lab.

*Prereq.: 175.*

Painting from still life, with the object of developing the color sense and acquiring directness of presentation; problems in the organization and execution of pictures.

**274 Water Color Painting U 5**

(527) Su, Sp. 5 3-hr. lab.

*Prereq.: 171.*

Special emphasis on water color's unique capacities for personal expression. Problems in landscape, still life, and the figure.

**276 Introduction to Printmaking U 5**

(526) A, W, Sp. 5 2-hr. lab.

*Prereq.: 171.*

The basic tools, methods, and materials of printmaking. Study and examination of original prints.

**280 Construction Sculpture U 5**

(534) A, W. 5 2-hr. lab.

*Prereq.: 180.*

Study of three-dimensional form through the use of power and hand tools.

**281 Modeling and Carving U 5**

Sp. 5 3-hr. lab.

*Prereq.: 180.*

An intermediate studio course dealing with modeled and carved sculpture in media such as clay, wax, wood, plaster, and stone.

**282 Life Sculpture U 5**

(562) A, W. 5 3-hr. lab.

*Prereq.: 180 and 272 or permission of instructor.*

Aspects of the human form studied in relation to the materials of sculpture; experimentation in a choice of materials: clay, wax, cement, plaster, and metal.

**290 Fundamentals of Art U 5**

(430) Su, A, W, Sp. 5 2-hr. lab.

*Not open to majors in Fine Arts or to students with credit for 300.*

An introduction to art through studio experience, exploring two-dimensional and three-dimensional media, by an analysis of form, and expression.

**295 Drawing U 3**

(402) A. 6-hr. lab.

*Prereq.: Arch. 2nd yr. standing.*

Visual fundamentals as expressed through drawing; emphasis upon configuration and visual relationships.

**296 Drawing from Life U 3**

(411) W. 6 lab. hrs.

*Prereq.: Arch. 2nd yr. standing and 295.*

Drawing from the human figure, study of gesture and planar relationships in two and three dimensional space.

**297 Form Organization U P 3**

(406) A, Sp. 3 2-hr. lab.

*Prereq.: Dent. 1st yr. standing or Arch. 2nd yr. standing.*

Drawing and sculpture, with emphasis on visual organization.

**300† Art for Elementary Teachers U 5**

(569) A, W, Sp. 5 2-hr. lab.

Laboratory experiences with two-dimensional and three-dimensional materials toward understanding the visual arts as background for teaching in the elementary schools.

**401 Art Education Laboratory U 5**

(548) A, W. 5 3-hr. lab.

*Prereq.: 200 and Ed. P. standing.*

Laboratory problems with a variety of design materials, with attention to the nature of different media and their educational potential.

**402 Art Education Laboratory U 4**

(549) Sp. 7 lab. hrs.

*Prereq.: 401.*

Study of children's development in art; laboratory participation for critical observation and supervised teaching in an art program for children.

**441 Ceramic Composition U 5**

(593) A. 2 cl., 4 2-hr. lab.

Ceramic computations course for art students; methods of representing ceramic composition; laboratory study and discussion of raw materials and their uses in bodies and glazes.

**442 Ceramic Composition U 5**

(594) W. 2 cl., 4 2-hr. lab.

*Prereq.: 441.*

Laboratory practice in development of the aesthetic aspects of ceramic glazes and bodies; methods of presenting their fired composition and correction faults.

**443 Ceramic Composition U 5**

(595) Sp. 2 cl., 4 2-hr. lab.

*Prereq.: 442.*

Laboratory study and development of individual projects leading to creation of ceramic compositions of aesthetic merit; further studies in texture and color.

**450 Design II U 5**

(554) A. 5 2-hr. lab.

*Prereq.: 253 and junior standing or Design Area approval; concur. 460.*

Resolution of design problems in two and three dimensions.



**451 Design II U 5**

(555) W. 5 2-hr. lab.

Prereq.: 450, 460; concur. 461.

Resolution of problems in information presentation and communications.

**452 Design II U 5**

(556) Sp. 5 2-hr. lab.

Prereq.: 451, 461; concur. 462.

Resolution of problems in visual communications.

**460 Design II U 5**

(582) A. 5 2-hr. lab.

Prereq.: 253; concur. 450.

Application of research and planning techniques required for the solution of industrial design problems; emphasis on structural problems.

**461 Design II U 5**

(583) W. 5 2-hr. lab.

Prereq.: 450 and 460; concur. 451.

A study of general systems as applied to the design of products and environments.

**462 Design II U 5**

(584) Sp. 5 2-hr. lab.

Prereq.: 451 and 461; concur. 452.

An integration of design problems comprised of informational products and environmental elements.

**465 Space and Enclosure Design U 5**

(576) Sp. 1 cl., 5 2-hr. lab.

A study of form and order concepts in environmental space and enclosure including exhibition systems and storage problems.

**468 Elements of Weaving U 5**

(572) A, W, Sp. 5 2-hr. lab.

Prereq.: 251 or 290, or permission of instructor.

An introduction to the creative and functional aspects of handweaving; experience in the construction, warping, threading, and the manipulation of both standard and modern design techniques.

**469 Weaving U 3**

(573) A, W, Sp. 3 2-hr. lab.

Prereq.: 468.

The use of weaving materials and equipment, with an emphasis on creative design of functional and decorative fabrics.

**500 Art for Elementary Teachers U 3**

(570) Su, A, W, Sp. 3 2-hr. lab.

Prereq.: 290 or 300.

Problems of teaching in terms of personal knowledge about art, insight into children's art work, and understanding of elementary school curriculum.

**501 Art Workshop for Elementary Teachers U G 4**

(799) Su. (2nd term).

Prereq.: Elem. Ed. 4th yr. standing.

Full time of student for first 3 weeks of 2nd term.

Laboratory experiences with a media toward understanding the visual arts; study of children's art expression; problems of teaching the arts in the elementary school program.

**515 Renaissance Art in Italy U G 5**

(654) A. 5 cl.

Prereq.: 211 or permission of instructor.

A study of architecture, sculpture, and painting in Italy during the fourteenth, fifteenth and sixteenth centuries. Melnikas.

**520 Modern European Art U G 5**

W. 5 cl.

Prereq.: 212 or permission of instructor.

European Art from about 1800 to the present, with emphasis on the outstanding masters of painting and sculpture.

**530 American Art U 3**

(585) Sp. 3 cl.

Prereq.: 212 or permission of instructor.

A study of architecture, painting, and sculpture in America.

**550 Development of Interior Design I U 3**

(605) A. 3 cl.

Prereq.: 210, 211, 212 or Hist. 101, 102 or equiv.

A survey of European interiors from 1300 to 1850, followed by a study of French design from Louis XIII through the Empire period.

**551 Development of Interior Design II U 3**

(606) W. 3 cl.

Prereq.: 550.

A study of the Tudor, Jacobean, Carolean, Georgian, and Regency Periods—considering the aesthetic, political, and economic implication.

**552 Development of Interior Design III U 3**

(607) Sp. 3 cl.

Prereq.: 551.

A survey of American interiors since 1650, followed by a study of the development of interior design in the western world since 1880. Field trips.

**570 Advanced Life Drawing U 5**

(625) Su, A, W, Sp. 5 3-hr. lab.

Prereq.: 272.

Advanced problems in drawing from life and figure composition.

**571 Advanced Water Color Painting U G 5**

(630) Su, Sp. 5 3-hr. lab.

Prereq.: 272, 274.

Painting from still life, models, and landscapes; special problems in organization and development of pictures.

**572 Advanced Water Color Painting U 5**

(644) Sp. 5 3-hr. lab.

Prereq.: 274.

Further practice in the water color medium, with emphasis on the critical capacity of the student; laboratory problems and field trips.

**573 Advanced Oil Painting U 5**

(660) Su, A, W, Sp. 5 3-hr. lab.

Prereq.: 272, 273.

Painting in oil from still life and the costume model; advanced problems in composition.

- 580 Ceramic Sculpture** U G 5  
*W. 5 3-hr. lab.*  
*Prereq.: 281.*  
 An advanced level studio course dealing with various methods of building and firing clay sculpture; emphasis on clay's unique structural and forming possibilities.
- 581 Welded and Forged Sculpture** U G 5  
*Sp. 5 3-hr. lab.*  
*Prereq.: 280, 281.*  
 An introduction to metal construction in sculpture by oxyacetylene welding, arc welding, and forming methods with forge and hammer.
- 582 Sculpture Foundry** U G 5  
*(728) A. 5 3-hr. lab.*  
*Prereq.: 280, 281, 282.*  
 An introduction to traditional and experimental methods used in the development and casting of sculpture; experience in the operation of foundry material and equipment.
- 603 Theory of Art Education** U G 4  
*(600) A. 9-hr. lab.*  
*Prereq.: 402 and Ed. 514, 535.*  
 Problems of art education in the public schools; observation in the public schools. *Barkan and Ecker.*
- 613† Primitive Art** U G 3  
*(679) Sp. 3 cl.*  
*Prereq.: 6 cr. hrs. Art History or Archaeology or Anthrop.*  
 The art of various ethnic groups from prehistoric times to the present.
- 615† Latin American Art** U G 3  
*(675) W. 3 cl.*  
*Prereq.: 9 cr. hrs. Art History or permission of instructor.*  
 A survey of the Pre-Columbian, Colonial, and Modern periods in Hispanic America and Brazil. *Baigell.*
- 616† The Art of India I** U G 3  
*(626) A. 3 cl.*  
*Prereq.: 213 or 9 cr. hrs. in Art History.*  
 A cultural art history of India through classical times, Ca. 650 A.D., in terms of monuments, people, and religious philosophies.
- 617† The Art of India II** U G 3  
*W. 3 cl.*  
*Prereq.: 616.*  
 A cultural art history of post-classical India, Ceylon, Central Asia, Indonesia, and Indo-China.
- 618 The Art of China** U G 5  
*(627) W. 5 cl.*  
*Prereq.: 213 or 9 cr. hrs. Art History.*  
 A cultural art history of China in terms of monuments, people, and ideas.
- 619† The Art of Japan** U G 3  
*(628) Sp. 3 cl.*  
*Prereq.: 213 or 9 cr. hrs. Art History.*  
 A cultural art history of Japan in terms of monuments, people, and beliefs.
- 620 Greek Archaeology** U G 5  
*(689) A. 5 cl.*  
*Prereq.: 210 or 10 cr. hrs. in Classics or permission of instructor.*  
 Minoan-Mycenaean civilization as revealed by archaeology. Classical Greek sites with emphasis on the arts and social, economic, religious data provided by the archaeological material. *Rubright.*
- 621 The Art of Ancient Egypt and the Near East** U G 5  
*(670) W. 5 cl.*  
*Prereq.: 210 or permission of instructor.*  
 The specialized study of the art and archaeology of the valleys of the Nile and Tigris Euphrates in ancient times. *Rubright.*
- 622 Ancient Greek and Roman Art** U G 5  
*(671) Sp. 5 cl.*  
*Prereq.: 210 or permission of instructor.*  
 The development of Greek and Roman art from 1000 B.C. to late Roman times.
- 624 Early Christian and Byzantine Art** U G 3  
*(632) A. 3 cl.*  
*Prereq.: 210 or permission of instructor.*  
 The Christian art of the Mediterranean region to the eighth century and the art of the Byzantine Empire to the fifteenth century. *Ludden.*
- 625 Romanesque and Gothic Art** U G 5  
*(633) W. 5 cl.*  
*Prereq.: 210 and 211 or permission of instructor.*  
 The art of Western Europe from the Carolingian period to the fourteenth century. *Ludden.*
- 627 Northern Renaissance Art** U G 5  
*(684) Sp. 5 cl.*  
*Prereq.: 210 or permission of instructor.*  
 The art of The Netherlands, France, Germany, and England from 1400 to 1600—with emphasis on Jan van Eyck, Rogier van der Weyden, Fouquet, Durer, Holbein, Bosch, and Breughel. *Ludden.*
- 628 Precursors to the Renaissance Art of Italy** U G 3  
*A. 3 cl.*  
*Prereq.: 211 or 515, or permission of instructor.*  
 The establishment of Florentine and Siennese schools of painting during the thirteenth and fourteenth centuries as reflected in the works of Giotto and Simone Martini. *Melnikas.*
- 629 Fifteenth Century Italian Art** U G 5  
*W. 5 cl.*  
*Prereq.: 515.*  
 A selective study of painting and sculpture of the Quattrocento. *Melnikas.*
- 630 Sixteenth Century Italian Art** U G 5  
*Sp. 5 cl.*  
*Prereq.: 515.*  
 A study of the major artists of the High Renaissance and Mannerist periods in Italy. *Melnikas.*



**631 Art of the Seventeenth Century in Europe U G 5**

(686) A. 5 cl.

Prereq.: 9 cr. hrs. Art History or permission of instructor.

Baroque Art in Italy, France, Spain, and the Lowlands—with emphasis on the major artists. Cope.

**633† The Art of Russia U G 3**

A. 3 cl.

Prereq.: 9 cr. hrs. of Art History.

A study of the history of art in Russia from the Pre-historic and Byzantine sources to the present.

**634 The Art of the Eighteenth Century in Europe U G 5**

W. 5 cl.

Prereq.: 212.

The development of architecture, painting, and sculpture from the late Baroque and Rococo to Historicism.

**635 Nineteenth Century European Art U G 5**

(678) Su, W. 5 cl.

Prereq.: 212 or 520, or permission of instructor.

A study of European art from NeoClassicism through Post Impressionism; emphasizing the study of the works of the major painters. Patton.

**636 Twentieth Century European Art U G 5**

(629) Su, A, Sp. 5 cl.

Prereq.: 212 or permission of instructor.

A study of the major achievements in painting, sculpture, and architecture since 1900.

**637 American Art to 1900 U G 5**

Sp. 5 cl.

Prereq.: 530.

A study of the history of art in America from Colonial Times to the end of the nineteenth century. Baigell.

**638 Twentieth Century American Art U G 3**

(669) W. 3 cl.

Prereq.: 212 or 530, or permission of instructor.

A study of significant developments in twentieth century American architecture, painting, and sculpture. Baigell.

**640 Studio Kilns and Firing Practices U G 5**

A. 15 lab. hrs.

Prereq.: Permission of instructor.

The design, construction, and use of simple gas and electric ceramic studio kilns; practice in the various types and methods of firing.

**641 Ceramic Reproduction Processes U G 5**

W. 15 lab. hrs.

Prereq.: Permission of instructor.

Studies in the designing, fabrication, and uses of models and molds in such multiple ceramic production processes as casting, jiggering, and pressing.

**642 Advanced Ceramic Laboratory U G 5**

Sp. 15 lab. hrs.

Prereq.: Permission of instructor.

Design and construction of large ceramic art forms.

**650 Interior Environment I U 5**

(603) A. 1 cl., 11 lab. hrs.

Prereq.: 212, 465.

Study of materials and factors peculiar to the field of interior environment; solving of interior problems; practice in the visual presentation of design solutions; field trips.

**651 Interior Environment II U 5**

(604) W. 1 cl., 11 lab. hrs.

Prereq.: 650.

Continuation of experience in solving interior environmental problems and presentation; a review of professional practice and ethics.

**652 Interior Environment III U 5**

Sp. 2 cl., 4 2-hr. lab.

Prereq.: 650, 651.

A design thesis necessitating research, visual solutions, and specifications in areas concerning the community environment.

**660 Design III. Product U 5**

(608) A. 5 2-hr. lab.

Prereq.: 452, 462; concur. 693.04 for 5 cr. hrs.

A study of materials, construction techniques, and fabrication of products.

**661 Design III. Product U 5**

(609) W. 5 2-hr. lab.

Prereq.: 660; concur. 693.04 for 5 cr. hrs.

Design problems related to manufacturing processes, materials, and technology; laboratory practice in planning and design for mass production.

**662 Design III. Product U 5**

(610) Sp. 5 2-hr. lab.

Prereq.: 661; concur. 693.04 for 5 cr. hrs.

Laboratory practice in research, planning, and design for industrial production.

**665 Design III. Visual Communication U 5**

(635) A. 5 2-hr. lab.

Prereq.: 452, 462; concur. 693.02 for 5 cr. hrs.

Explorations coordinating graphic media, technology, and techniques in advanced two-dimensional and three-dimensional graphic problems; research and development projects.

**666 Design III. Visual Communication U 5**

(636) W. 5 2-hr. lab.

Prereq.: 665; concur. 693.02 for 5 cr. hrs.

Continuation of 665.

**667 Design III. Visual Communication U 5**

(637) Sp. 5 2-hr. lab.

Prereq.: 666; concur. 693.02 for 5 cr. hrs.

Continuation of 666.

**670 Comprehensive Drawing U G 5**

(687) A. 5 3-hr. lab.

Prereq.: 272.

Exploration of the structure and interrelationships of visual form in drawing, painting, and sculpture. The principal historical modes of drawing will be examined.

**677 Graphic Processes U G 5**

(643) W. 5 3-hr. lab.

Prereq.: 175. Graduate students must have 15 cr. hrs. in drawing and painting.

Lithography and serigraphy explored by students as part of their professional experience in print-making. *Gatrell.*

# 678 Graphic Processes U G 5

(688) A. 5 3-hr. lab.

*Prereq.: 175. Graduate students must have 15 cr. hrs. in drawing and painting.*

Woodcuts, etchings, and engravings explored by students as means for individual expression. *Chafetz.*

# 680† Large Sculpture Projects U G 5

*Sp. 5 3-hr. lab.*

*Prereq.: 280, 281.*

An advanced level studio course dealing with large-scale sculpture constructed in relation to architecture.

# 681 Advanced Figurative Sculpture U G 5

(729) A, W. 5 3-hr. lab.

*Prereq.: 281, 282.*

An advanced level studio course dealing with individual study of the relationship of sculptor to the model; various media.

# 693 Special Problems U G 2-5

(681) *Prereq.: Permission of instructor.*

*Repeatable to a maximum of 45 cr. hrs.*

Advanced study for students in specialized programs. *Hausman and Staff.*

## 693.01 History

*Su, A, W, Sp.*

## 693.02 Visual Communication Design

*A, W, Sp.*

## 693.03 Ceramics

*Su, A, W, Sp.*

## 693.04 Design

*Su, A, W, Sp.*

## 693.05 Art Education

*Su, A, W, Sp.*

## 693.06 Printmaking

*Su, A, W, Sp.*

## 693.07 Weaving

*A, W, Sp.*

## 693.08 Space and Enclosure Design

*A, W, Sp.*

## 693.09 Drawing

*A, W, Sp.*

## 693.10 Painting

*Su, A, W, Sp.*

## 693.11 Sculpture

*Su, A, W, Sp.*

# 715 Research Methods in Art History U G 3

(720) A.

*Prereq.: 20 cr. hrs. in Art History.*

Investigations of source materials, bibliography, concepts, and techniques of research.

# 718 Studies in Italian Renaissance U G 5

(730) A, W. 5 cl.

*Prereq.: 515, or 629, or 630 or permission of instructor.*

*Repeatable to a maximum of 15 cr. hrs.*

Selected problems in painting, sculpture, and architecture of Italy in the 14th, 15th, and 16th centuries. *Melnikas.*

# 724 Studies in Northern Baroque Art U G 3

*Sp. 3 cl.*

*Prereq.: 631.*

*Repeatable to a maximum of 9 cr. hrs.*

Selected problems in the painting, sculpture, and architecture of Belgium, Holland, Germany, and France in the 17th and 18th centuries.

# 725† Studies in Italian Baroque Art U G 3

(708) *Su. 3 cl.*

Selected problems in the painting, sculpture, and architecture in the 17th century.

# 726† Studies in Spanish Art U G 3

(704) *W. 3 cl.*

*Prereq.: Permission of instructor.*

A selective study of the architecture, sculpture, painting, and minor arts of Spain. *Cope.*

# 737 Studies in American Art U G 3

*A. 3 cl.*

*Prereq.: 530 or permission of instructor.*

*Repeatable to a maximum of 9 cr. hrs.*

Selected problems in the painting, sculpture, and architecture of the United States.

# 804 Research Problems in Art Education G 3-5

(718) *Sp.*

Problems of art education at the elementary, secondary, and college level. Individual student problems will be initiated in light of current educational needs. *Barkan, Ecker, and Hausman.*

# 805† Art Education in the Elementary Schools G 5

(710) A.

The role of the Art Supervisor for curriculum development and instruction in the elementary school program. *Barkan and Hausman.*

# 806† Art Education in the Secondary Schools G 5

(714) A.

The role of the Art Supervisor for curriculum development and instruction in the secondary school program. *Barkan and Hausman.*

# 807† Minor Seminar for the Practicing Art Teacher G 3-5

(718) A.

Curriculum problems in teaching the visual arts. Studio work in related arts; theoretical considerations. *Barkan and Ecker.*

# 816† Museum Problems G 3-5

(835) *W.*

An introduction to professional work in museums.

# 839 Studies in Art Theory and Criticism G 3

(721) *W.*

Investigations of theories of art and their applications. *Ludden.*



**840 Ceramic Design Techniques G 3-5**  
(722) A.

*Prereq.: Permission of instructor.*

Personal development in the techniques and processes of the ceramic designer with emphasis upon quality as evidenced in form, color, and decoration. *Bogatay.*

**841 Ceramic Design Techniques G 3-5**  
(723) Sp.

*Prereq.: 840.*

Continuation of 840.

**845 Problems in Ceramic Composition G 3-5**

(813) W.

Research in the development of special ceramic compositions pertinent to particular problems in ceramic design.

**846 Problems in Ceramic Composition G 3-5**

(814) W, Sp.

*Prereq.: 845.*

Continuation of 845.

**847 Historical Materials and Processes G 3-5**

(815) W.

Original research in derivation and use of historical ceramic materials and processes with specific relation to the problems of the ceramic industrial designer or the practicing potter.

**848 Historical Materials and Processes G 3-5**

(816) Sp.

*Prereq.: 847.*

Continuation of 847.

**870 Mural Painting G 3-5**  
(726) Sp.

Studies in wall decoration for specific architectural setting; presentation sketches and fullscale execution; traditional and contemporary media.

**871 Mural Painting G 3-5**  
(727) Su.

*Prereq.: 870.*

Continuation of 870.

**874 Painting G 3-5**  
(817) W.

Emphasis on the principles of abstraction in pictorial organization; attention to the relationship of subject matter and abstraction as related to contemporary and traditional approaches. *Gatrell, King, and Sherman.*

**875 Painting G 3-5**  
(724) A.

The painter's development as a creative artist, the relation of theory and practice; individual and group criticism on work in progress; lectures and field trips. *Gatrell, King, Sherman, and Csuri.*

**876 Painting G 3-5**  
(725) W.

*Prereq.: 875.*

Continuation of 875.

**879 Perception-Art Form Seminar G 2**  
(705) W. 2 cl.

Seminar utilizing the Ames Visual Demonstration Center as a basis for discussion of perception and aesthetic form. *Sherman.*

**881 Advanced Sculpture G 3-5**  
(818) A.

Advanced sculpture with a wide range of choice in media.

**885 Advanced Sculpture G 3-5**  
(819) W.

*Prereq.: 881.*

Continuation of 881.

**887 Advanced Sculpture G 3-5**  
(820) Sp.

*Prereq.: 885.*

Continuation of 885.

**911 Research Problems in Art Education G 3-5**

(801E) Su, A, W, Sp.

*Repeatable to a maximum of 45 cr. hrs.*

**914† Seminar in Oriental Art G 2-5**  
(804A) W.

*Prereq.: Permission of instructor.*

*Repeatable to a maximum of 15 cr. hrs.*

**917 Seminar in Medieval Art G 2-5**  
(804C) Sp.

*Prereq.: Permission of instructor.*

*Repeatable to a maximum of 15 cr. hrs.*

*Ludden.*

**920 Seminar in Italian Renaissance Art G 2-5**

(804F) Sp.

*Prereq.: Permission of instructor.*

*Repeatable to a maximum of 15 cr. hrs.*

*Melnikas.*

**930 Seminar in Modern Art G 2-5**  
(804D) A.

*Prereq.: Permission of instructor.*

*Repeatable to a maximum of 15 cr. hrs.*

*Ludden.*

**932 Seminar in American Art G 2-5**  
(804E) W.

*Prereq.: Permission of instructor.*

*Repeatable to a maximum of 15 cr. hrs.*

*Patton.*

**939 Seminar in Art Theory and Criticism G 2-5**

(804B) Sp.

*Prereq.: Permission of instructor.*

*Repeatable to a maximum of 15 cr. hrs.*

*Ludden.*

**940 Research Problems in Ceramics G 3-5**  
(801C) Su, A, W, Sp.

*Repeatable to a maximum of 45 cr. hrs.*

- 950 Research Problems in Design** G 3-5  
(801D) A, W, Sp.  
*Repeatable to a maximum of 45 cr. hrs.*

- 970 Research Problems in Painting** G 3-5  
(801P) Su, A, W, Sp.  
*Repeatable to a maximum of 45 cr. hrs.*

- 971 Research Problems in Printmaking** G 3-5  
(801G) Su, A, W, Sp.  
*Repeatable to a maximum of 45 cr. hrs.*

- 980 Research Problems in Sculpture** G 3-5  
(801S) Su, A, W, Sp.  
*Repeatable to a maximum of 45 cr. hrs.*

- 993 Individual Studies** G 1-5  
(701) *Repeatable to a maximum of 45 cr. hrs.*  
Hausman and staff.

993.01 History  
Su, A, W, Sp.

993.03 Ceramics  
Su, A, W, Sp.

993.04 Design  
A, W, Sp.

993.05 Art Education  
Su, A, W, Sp.

993.06 Printmaking  
Su, A, W, Sp.

993.10 Painting  
Su, A, W, Sp.

993.11 Sculpture  
Su, A, W, Sp.

- 999 Research in Fine Arts** G Arr.  
(950) Su, A, W, Sp.  
*Research for thesis and dissertation purposes only.*

## Forestry

Office: 118 Horticulture and Forestry Building, 1827 Neil Avenue

Professors Howlett (Chairman), Alban, Beattie, Brown, Cahoon, Cowen, Geisman, Gould, Hartman, Hill, Kiplinger, Kretschman, Reisch, and Wittmeyer; Associate Professors Banta, Brooks, Caldwell, Clements, Kawase, Tayama, and Touse; Assistant Professors Gallander and Smith.

### GENERAL PREREQUISITES FOR COURSES NUMBERED 200

Unless otherwise indicated, the prerequisites for 200 courses are 45 cr. hrs. in collegiate courses, exclusive of ROTC and Phys. Ed.; or specified course(s) numbered 100-199.

- 221 Coniferous Dendrology** U 5  
(409) A. 3 cl., 2 2-hr. labs.  
*Prereq.: Bot. 100 or 102.*

A study of the principal species of Gymnosperms in the United States with emphasis on identification, range, and silvical characteristics. Cowen.

- 222 Hardwood Dendrology** U 5  
(408) Sp. 3 cl., 2 2-hr. labs.  
*Prereq.: Bot. 100 or 102.*

A study of the principal species of Angiosperms in the United States with emphasis on identification, range, and silvical characteristics. Cowen.

- 223 Silvics** U 5  
(502) W. 5 cl.  
*Prereq.: Bot. 100 or 102.*

The effect of site factors on forest vegetation and action of forest cover on the site; characteristics of individual trees and forest stands. Cowen.

### GENERAL PREREQUISITES FOR COURSES NUMBERED 300 AND 400

Unless otherwise indicated, the prerequisites for 300 and 400 courses are 90 cr. hrs. in collegiate courses, exclusive of ROTC and Phys. Ed.; or specified course(s) numbered 100-399.

- 310 Principles of Forestry** U 5  
(410) A. 3 cl., 2 2-hr. lab.

History of American forests, their character and occurrence; underlying fundamentals of silviculture and forest management; introduction to forest management and protection. Touse.

- 321 Silviculture** U 5  
(421) A. 5 cl.  
*Prereq.: 221, 222 and 223.*

A study of the methods of handling the forest on a permanent basis to assure the reproduction and proper growth of tree crops. Cowen.

- 323 Forest Mensuration** U 5  
(423) W. 5 cl.  
*Prereq.: 221, 222 and 223.*

The measurement of the forest and forest products. Touse.

- 325 Forest Management** U 5  
(425) Sp. 5 cl.  
*Prereq.: 321 and 323.*

A study of the practical problems of managing woodland property, both from the technical and the financial standpoint. Cowen.

- 431 Wood Structure and Properties** U 5  
A. 5 cl.  
*Prereq.: 221 and 222.*

The classification and identification of the important timber species based upon wood structure and properties; defects in wood; moisture relationships; physical and chemical properties. Touse.

- 432 Manufacturing Forest Products** U 5  
W. 5 cl.

Intensive study of the manufacturing industries based on wood products or products derived from wood by chemical and other means. Touse.

- 433 Analysis of Forest Industry Management** U 5  
Sp. 5 cl.  
*Prereq.: 431 and 432.*



A survey of the common problems encountered by managers of the wood-using industries; emphasis on sources of information and methods of solution. *Touse.*

#### GENERAL PREREQUISITES FOR COURSES NUMBERED 500

Unless otherwise indicated, the prerequisites for 500 courses are 15 cr. hrs. in courses in the same discipline numbered 200 or higher, or 10 cr. hrs. in courses numbered 200 or higher in the same discipline, plus 10 cr. hrs. in courses numbered 200 or higher in specified allied disciplines; or baccalaureate degree.

#### 593 Individual Studies U G 2-5

(701) Su, A, W, Sp.

*Prereq.: Permission of instructor.*

Special problems in the field of forestry and forest products.

#### GENERAL PREREQUISITES FOR COURSES NUMBERED 800 AND 900

Unless otherwise indicated, the prerequisites for 800 and 900 courses are 30 cr. hrs. in courses in the same discipline, or 20 cr. hrs. in the same discipline, plus 25 cr. hrs. in specified allied disciplines.

#### 897 Interdepartmental Seminar in Natural Resources G 1

A, W, Sp.

(See under Interdepartmental Seminars.)

#### 999 Research in Forestry G Arr.

(950) Su, A, W, Sp.

Research for thesis and dissertation purposes only.

## French

Office: 116 Derby Hall, 154 North Oval Drive

Professors Bulatkin (Chairman), Carlut, Davidson, Demorest (Emeritus), Havens (Emeritus), Meiden, Moore (Emeritus), and Pimsleur; Assistant Professors Ames, Astier, and Mitchell; Instructors Fourman, Honeycutt, Imhoff, and Rodriguez.

#### 101 Elementary French U 5

(401) Su, A, W, Sp. 5 cl.

May not be taken concur. with Span. 101-102, Port. 101-102, Ital. 101-102.

Not open to students who are not eligible to take Engl. 101. Credit in 101 will be counted toward graduation only if followed by successful completion of 102 or if taken after successful completion of the fourth regular university course in another foreign language.

Elements of French grammar, with oral and written exercises; attention to ear training and oral practice; elementary reading based on French geography, history, and customs.

#### 102 Elementary French U 5

(402) Su, A, W, Sp. 5 cl.

*Prereq.: 101.*

May not be taken concur. with Span. 101-102, Port. 101-102, Ital. 101-102.

The elements of French grammar with abundant oral and written exercises; development of conversational skill; reading, vocabulary building, attention to French idioms.

#### 103 Intermediate French U 5

(403) Su, A, W, Sp. 5 cl.

*Prereq.: 102.*

Review of salient points of elementary grammar, attention to French idioms; reading of short stories, plays, and novels.

#### 104 Intermediate French U 5

(404) Su, A, W, Sp. 5 cl.

*Prereq.: 103 or 112.*

*Course conducted in French.*

Reading of French plays, short stories, and novels; emphasis on oral practice and French idioms.

#### 105 Elementary French Conversation and Composition U 5

(410) Su, A, W, Sp. 5 cl.

*Prereq.: 103.*

*Course conducted in French.*

Intensive practice in oral and written French, based on texts and periodicals concerned with French life of today; grammar and idiom review.

#### 112 Intensive French U 5, 10, 15

Su. 15 cl. Enrollment limited to 25 students.

*Prereq.: Permission of chairman.*

Full time of student and full fees required. *Equiv. of 101, 102, 103. Students with credit for 101 or the equiv. may not register for more than 10 cr. hrs. Students with credit for 101 and 102 or the equiv. may not register for more than 5 cr. hrs. Students with credit for 103 or the equiv. may not register for credit.*

Elementary and intermediate French; intensive drill in form, syntax, vocabulary, and idiom; reading of short stories and plays in French.

#### 162 Elementary-Intermediate French U 5 for Selected Students

(415) W. 5 cl.

*Prereq.: Grade of "A" in 101 and permission of department.*

Successful completion of 101-162-163 fulfills language requirements and satisfies prereq. for 400 courses.

#### 163 Elementary-Intermediate French U 5 for Selected Students

(416) Sp. 5 cl.

*Prereq.: 162.*

Successful completion of 101-162-163 fulfills language requirements and satisfies prereq. for 400 courses.

#### 271 French Classics in Translation U 3

(570) A, W, Sp. 3 cl.

*Not open to French majors.*

Reading, analysis, and discussion of major French works in translation, beginning with the *Song of Roland* and continuing with authors such as Montaigne, Pascal, Molière, Voltaire, Rousseau.

#### 401 Review Grammar and Composition U 3

(518) Su, A, W, Sp. 3 cl.

*Prereq.: 105.*

Review of French grammar; composition on assigned topics and practice in translation.

**402 Intermediate French Conversation U 3 and Composition**

(521) A, Sp. 3 cl.

Prereq.: 105.

Vocabulary building, practice in speaking French, conversation, and composition dealing with social and economic aspects of French life.

**403 Intermediate French Conversation U 3 and Composition**

(522) Su, W. 3 cl.

Prereq.: 105.

Vocabulary building, practice in speaking French, conversation, and composition dealing with intellectual and artistic aspects of French life.

**404 French Pronunciation U 5**

(532) A, W, Sp. 5 cl.

Prereq.: 105.

Not open to students with credit for (632).

Formation of French sounds, rules of pronunciation and diction; lectures and practical exercises; use of phonetic symbols.

**421 Introduction to Modern French U 5 Literature**

(517) Su, A, W, Sp. 5 cl.

Prereq.: 104.

Not open to students with credit for (417).

Rapid reading and discussion of French literary movements and masterpieces of the nineteenth century and their relation to modern France.

**422 Masterpieces of French Literature: Middle Ages and Renaissance U 5**

(529) A, Sp. 5 cl.

Prereq.: 421.

**423 Masterpieces of French Literature: Seventeenth and Eighteenth Centuries U 5**

(530) W. 5 cl.

Prereq.: 421.

**441†\* La civilisation française des origines à nos jours. U 5**

(535) A. 5 cl.

Prereq.: 401 or 402 or 403.

Course conducted in French.

Major developments of French culture down to 1900. Carlut.

**571 Basic French for Graduate Students G 5**

(405) Su, A, W, Sp. 5 cl.

Prereq.: Graduate standing.

Credit does not apply to the minimum number of hours required for the Master's or doctoral degrees. No audit.

Designed primarily for students who have no formal preparation in French, covering basic grammar and vocabulary.

**572 French for Research I G 3**

Su, A, W, Sp. 3 cl.

Prereq.: Grade of "C" or above in 571, or equiv. preparation demonstrated by a placement test.

Credit does not apply to the minimum number of hours required for the Masters' or doctoral degrees. No audit.

Repeatable twice.

Satisfactory completion of this course (grade of "A" or "B") will be accepted as evidence of a dictionary reading knowledge in fulfillment of Ph.D. language requirement.

**573 French for Research II G 3**

Su, A, W, Sp. 3 cl.

Prereq.: Grade of "A" or "B" in 572, or equiv. preparation demonstrated by a placement test.

Credit does not apply to the minimum number of hours required for the Master's or doctoral degrees. No audit.

Repeatable twice.

Satisfactory completion of this course (grade of "A" or "B") will be accepted as evidence of a thorough reading knowledge in fulfillment of Ph.D. language requirement.

**601 Modern French Syntax U G 5**

(623) Su, A, W, Sp. 5 cl.

Prereq.: 401.

Systematic review of French grammar with composition and other exercises, based on contemporary authors; modern tendencies in syntactic analysis. Meiden.

**602 French Translating U G 3**

(619) A, W, Sp. 3 cl.

Prereq.: 601 or equiv.

Translations from French to English and English to French. Astier.

**603 Advanced Spoken and Written French U G 3**

(638) Su, Sp. 3 cl.

Prereq.: 402, 403, and 601 or equiv.

Intensive practice in speaking and writing French; based on contemporary usage.

**604† Advanced French Pronunciation U G 3 and Phonostylistics**

(642) Su. 2 cl., 1 lab. hr.

Prereq.: 404 or permission of instructor.

Training in auditory and oral aspects of French pronunciation; special emphasis on analysis of different types of spoken French.

**621\* French Literature of the Renaissance U G 5**

(616) Sp. 5 cl.

Prereq.: 421 and either 422 or 423.

Selections from Marot, Rabelais, the Pléiade and Montaigne as they reflect the age of humanism and illustrate the transition from medieval to modern forms and ideas.

**622\* French Classicism, 1600-1715 U G 5**

(617) A. 5 cl.

Prereq.: 421 and either 422 or 423.

The formation of the classic spirit; the perfection of dramatic form and the seventeenth century portrait of man.

**623†\* French Literature of the Enlightenment U G 5**

(618) A. 5 cl.

Prereq.: 421 and either 422 or 423.

A study of the ideas of the eighteenth century in their relation to modern times; special emphasis on Montesquieu, Voltaire, Diderot, and Rousseau. Davidson.



**624†\* The Romantic Period in French U G 5 Literature, 1800-1850**

(603) W. 5 cl.

Prereq.: 421 and either 422 or 423.

The development of romanticism and rise of realism in the first half of the nineteenth century in the novel, poetry, and drama. *Carlut.*

**625\* French Literary Currents U G 5 1850-1914**

(604) W. 5 cl.

Prereq.: 421 and either 422 or 423.

Realism, naturalism, symbolism, and the movements of reaction in the novel and in literary criticism. *Carlut.*

**626\* Contemporary French Literature U G 5**

(640) W. 5 cl.

Prereq.: 421 and either 422 or 423.

Twentieth century literary currents, and their significance, with special attention given to the novel. Proust, Gide, Malraux, Mauriac, Bernanos, Saint-Exupéry, Camus, Sartre, and others. *Astier.*

**627\* Contemporary French Drama U G 3**

(634) Sp. 3 cl.

Prereq.: 421 and either 422 or 423.

Plays of Lenormand, Rostand, Claudel, Giraudoux, Cocteau, Montherlant, Anouilh, Sartre, Camus, and Ionesco; the different theatres and directors from Copeau to the present day. *Astier.*

**628†\* Modern French Poetry U G 3**

(651) W. 3 cl.

Prereq.: 421 and either 422 or 423.

Source and processes of poetic creations as exemplified in selected works of French poets from Baudelaire to the present time. *Astier.*

**629\* Explication de textes U G 3**

(639) Su. 3 cl.

Prereq.: 421, and either 422 or 423.

Repeatable to a maximum of 6 cr. hrs.

Intensive linguistic and literary exploration of representative passages from modern French authors.

**631\* French Literature U G 3-5**

(645) Su. 5 cl.

Prereq.: 421 and either 422 or 423.

Repeatable to a maximum of 15 cr. hrs.

**641†\* La civilisation française contemporaine U G 3**

(636) A. 3 cl.

Prereq.: 401 and 402 or 403.

Course conducted in French.

Life, institutions, and culture of contemporary France. *Carlut.*

**694 Special Group Studies in French U G 1-5**

Su, A, W, Sp.

Prereq.: Permission of instructor.

Repeatable to a maximum of 15 cr. hrs.

**783 Honors Course in French U 3-5**

(705) A, W, Sp.

Prereq.: 4th yr. standing with a grade of "A" in at least half of the French courses and an average of "B" in the remainder, and permission of department and the Honors Committee of the College.

Repeatable to a maximum of 15 cr. hrs.

Offers undergraduates with special aptitudes a greater opportunity to do independent study than is possible in the ordinary course; work in conference, library, or phonetics laboratory.

**811 History of the French Language: Introduction G 3**

(729) A. 3 cl.

Prereq.: M.A. Candidates in French; others by permission of instructor.

Basic concepts of historical linguistics; the major factors of change in the history of the French language from Roman times to the present.

**812†\* History of the French Language: Phonology G 3**

(801) W. 3 cl.

Prereq.: Knowledge of Latin.

The evolution of sounds from Latin to Modern French.

**813†\* History of the French Language: Morphology G 5**

(802) Sp. 5 cl.

Prereq.: 812.

The evolution of grammatical forms from Latin to Modern French. *Bulatkin.*

**821 Old French Literature G 3**

(813) W. 3 cl.

Main currents of Old French Literature to 1300; reading of the *Chanson de Roland*; Yvain of Chrétien de Trôyes, Bérout's, *Tristan*, representative lyrics. *Bulatkin.*

**822\* Middle French Literature G 3**

(805) Sp. 3 cl.

Prereq.: 821.

Survey from about 1300 to 1465. Machaut, Froissart, Deschamps, Christine de Pisan, Charles D'Orleans, Villon, Anglo-French literary relations, with special reference to Chaucer. *Bulatkin.*

**824\* Topics and Problems in 17th Century French Literature G 3**

(717) W. 3 cl.

Prereq.: 622 or permission of instructor.

Intensive exploration of a special topic or problem, with readings in literary works and in relevant criticism and scholarship. *Davidson.*

**825†\* Topics and Problems in 18th Century French Literature G 3**

(718) A. 3 cl.

Prereq.: 623 or permission of instructor.

Intensive exploration of a special topic or problem, with readings in literary works and in relevant criticism and scholarship. *Davidson.*

**826\* Topics and Problems in 19th Century French Literature G 3**(719) *Sp. 3 cl.**Prereq.: 624 or 625 or permission of instructor.*

Intensive exploration of special topics or problems with readings in literary works in relevant criticism and scholarship. *Carlut.*

Topic for 1968-69: To be announced.

**827\* Topics and Problems in 20th Century French Literature G 3**(720) *A. 3 cl.**Prereq.: 826 or equiv.*

Intensive study of a specific topic or problem, with readings of selected literary and critical works. *Astier.*

**828\* Old Provençal G 3**(803) *W. 3 cl.**Prereq.: 813 or Span. 813.*

Origin of the troubadour lyric; its history, as to form and content, in the eleventh and twelfth centuries; elements of phonology and morphology. *Bulatkin.*

**829\* Old Provençal G 3**(804) *Sp. 3 cl.**Prereq.: 828.*

Troubadour lyric in the thirteenth century; increased attention to non-lyric genres, and to prose; continuation of linguistics, with greater emphasis on semantic problems. *Bulatkin.*

**831 Seminar in French Literature G 2-5**(811) *A. (3-5 cr. hrs.), Su. (2-3 cr. hrs.)**Prereq.: Permission of instructor.***832 Seminar in French Literature G 2-5**(812) *W. (3-5 cr. hrs.), Su. (2-3 cr. hrs.)**Prereq.: Permission of instructor.***833 Seminar in French Literature G 3-5**(817) *Sp.**Prereq.: Permission of instructor.***885 Introduction to Methods in the History and Criticism of Literature G 5**(731) *A. 4 or 5 cl.*

Selected readings in basic literary history, criticism, and theory, with practice in the use of standard bibliographical aids to scholarship. *Davidson.*

**886† Bibliography and Method G 3**(880) *Sp. 3 cl.*

A course to acquaint graduate students with tools, problems, and methods of linguistic and literary research. *Davidson.*

**993 Individual Studies in French G 1-5***Su, A, W, Sp.**Prereq.: Permission of instructor.**Repeatable to a maximum of 15 cr. hrs.***994 Special Group Studies in French G 1-5***Su, A, W, Sp.**Prereq.: Permission of instructor.**Repeatable to a maximum of 15 cr. hrs.*

Investigation of minor problems in the various fields of French literature and language.

**999 Research in French Language or Literature G Arr.**(950) *Su, A, W, Sp.*

Research for thesis and dissertation purposes only.

**Geodetic Science**

Office: 236 Graduate School, 164 West 19th Avenue

Professors Uotila (Chairman), Heiskanen (Emeritus), and Mueller; Associate Professors Ghosh, Merchant, and Rapp; Assistant Professor Adler; Instructor Cushman.

**GENERAL PREREQUISITES FOR ALL 500 COURSES**

Prerequisites for all 500 courses include Math. 151 and Civil E. 401. The latter may be waived for students who can demonstrate through previous experience a comprehensive understanding of the topics of this course.

**512 Field and Land Surveying U 5***W. 4 cl., 1 3-hr. lab.*

Basic plane surveying techniques for geodetic science students.

**513 Geodetic Surveying U 5***A. 4 cl., 1 3-hr. lab.**Prereq.: 512 or permission of instructor.*

Geodetic surveying techniques with emphasis on U. S. field procedures.

**522 Geometric Photogrammetry U 5***A. 4 cl., 1 3-hr. lab.**May be taken concur. with Civil E. 401.*

History; central projection; principles of orientation; principles of optics; photography; stereovision and basic parallax formulae; geometry of single image photogrammetry; radial triangulation; rectification; map compilation.

**GENERAL PREREQUISITES FOR ALL 600 COURSES**

Prerequisites for all 600 courses include Math. 254 and Physics 231.

**613 Introduction to Advanced Geodesy U G 5***W. 5 cl.**Prereq.: 513; prereq. or concur. 642, Physics 232 and 233.**Not open for graduate credit to students registering for 614 or 863.*

Geometrical and physical geodesy; three-dimensional geodesy; classical and modern concepts of geodesy; the dynamic earth.

**614 Fundamentals of Geometric Geodesy U G 5***W. 4 cl., 1 2-hr. lab.**Prereq.: 641; prereq. or concur. 642, Physics 232 and 233.*

Fundamental parameters of ellipsoidal geometry, normal section, geodesic; ellipsoidal triangles; direct and inverse problems; differential formulae.



**624 Instrumentation in Photogrammetry U G 5**

W. 4 cl., 1 3-hr. lab.

Prereq.: 522 or permission of instructor.

Introduction to Rectifiers and Third, Second and First-order stereo-plotters; optical, mechanical and photo-goniometer type instruments; evaluation, testing and adjusting of stereoplotters instruments.

**625 Photo Interpretation U G 4**

A. 3 cl., 1 3-hr. lab.

Prereq. or concur.: 522 or permission of instructor.

Principles of reading, analysis and interpretation of photographs; application of photographs in geological, forest, agricultural, geographical, etc., interpretations; using the techniques of non-mapping problems.

**626 Aerial and Terrestrial Photography U G 4**

(721) A. 3 cl., 1 3-hr. lab.

Prereq.: 522, 641; prereq. or concur.: Physics 232 and 233 or permission of instructor.

Properties, design and calibration of various photogrammetric cameras; physical characteristics and quality control of photography; photogrammetric airplanes and auxiliary devices; image evaluation.

**627 Introduction to Advanced Photogrammetry U G 5**

W. 4 cl., 1 3-hr. lab.

Prereq.: 522; prereq. or concur. 642, Physics 232 and 233.

Not open for graduate credit to students registering for 624, 823, or 826.

Geometry of single and double image photogrammetry; instruments; relative and absolute orientation; field control and photogrammetric control extension; photo interpretation; various applications of photogrammetry.

**631 Map Projections U G 3**

Sp. 3 cl.

Projections of the sphere; projections of the ellipsoid to the sphere; the mathematics of the principal map projections used for major map series.

**641 Applied Mathematical Methods in Geodetic Science U G 5**

A. 5 cl.

Mathematical techniques used in geodetic science; tensor and vector analysis; matrix computations; special functions; spherical harmonics.

**642 Introduction to Adjustment Computations U G 5**

(653) W. 4 cl., 1 3-hr. lab.

Normal distribution; measures of accuracy; method of least squares; weights, observation and condition equations; solution of normal equations; graphical presentation of residuals and errors.

**657 Instrumentation in Electronic Surveying U G 5**

(758) A. 4 cl., 1 3-hr. lab.

Prereq.: 613 or 614.

Introduction to electronic surveying systems; analysis of electronic and electro-optical instruments, especially referring to accuracy and portability; theory of geometry of electronic location.

**663 Geodetic Astronomy U G 4**

(617) Sp. 3 cl., 1 3-hr. lab.

Prereq.: 513, Astron. 611.

The determination of time, latitude, longitude, and azimuth from astronomical observations; the application of solar eclipses, and lunar occultations in geodesy.

**686 Field Work in Geodesy U G 5**

Su. (1st term). 1 cl., 5 4-hr. labs.

Prereq.: 513.

**687 Field Work in Geodetic Astronomy U G 5**

Su. (2nd term). 1 cl., 5 4-hr. labs.

Prereq.: 663.

**688 Field Work in Photogrammetry U G 5**

Su. (2nd term). 4 cl., 5 4-hr. labs.

Prereq.: 512 and 522.

**689 Field Work in Distance Measurement U G 5**

Su. (1st term). 1 cl., 5 4-hr. labs.

Prereq.: 512.

**693 Individual Studies in Geodetic Science U G 2-9**

Su, A, W, Sp.

Prereq.: Permission of instructor.

Repeatable to a maximum of 30 cr. hrs.

Assigned reading, laboratory or field work, under the guidance of a staff member, arranged to meet the requirements of individual students.

**694 Special Group Studies in Geodetic Science U G 2-9**

Su, A, W, Sp.

Prereq.: Permission of instructor.

Repeatable to a maximum of 30 cr. hrs.

**GENERAL PREREQUISITES FOR ALL 800 COURSES**

Prerequisites for all 800 courses include Geod. Sc. 641, Physics 232 and 233. Prereq. or concur.: 642.

**812 Geometric Geodesy G 5**

Sp. 4 cl., 1 2-hr. lab.

Prereq.: 614.

Reduction of observations to the ellipsoid; Laplace stations; triangulation observation equations; refraction; determination of the size and shape of the reference ellipsoid; fundamentals of three-dimensional geodesy.

**821 Stereophotogrammetry G 4**

(723) A. 3 cl., 1 3-hr. lab.

Prereq.: 624 or permission of instructor.

Detailed description of first-order stereo instruments; empirical, graphical and numerical relative orientation methods for flat and mountainous models; absolute orientation; terrestrial photogrammetry.

**822 Photogrammetry in Practice G 5**

(725) W. 4 cl., 1 3-hr. lab.

Prereq.: 821 or permission of instructor.

Flight plans; terrestrial station project; ground control and signalization in terrestrial and aerial photogrammetry; plotting and data reduction; various applications; accuracy and economy; cost computation.

- 823 Theory of Errors in Photogrammetry** G 5  
*Sp. 4 cl., 1 3-hr. lab.*  
*Prereq.: 821 and 846.*

Theory of errors of exterior and interior orientation; model errors and Y-parallax formulas; analysis of various methods of relative orientation; critical surfaces.

- 825 Analytical Photogrammetry** G 5  
*W. 4 cl., 1 3-hr. lab.*  
*Prereq.: 821; prereq. or concur. 846.*

Basic principles; measurements of photo coordinates with comparators and first-order instruments; space resection and intersection; orientation matrix; analytical aerial and space triangulation; stellar photogrammetry.

- 826 Aerial Triangulation** G 5  
*Sp. 4 cl., 1 3-hr. lab.*  
*Prereq.: 821; prereq. or concur. 846.*

Spatial aerial triangulation at first order stereo instruments; independent pairs of photographs; strip and block triangulation; auxiliary data; independent geodetic control; radial triangulation; accuracy and economy.

- 844 Geodetic Applications of Digital Computers** G 5  
*W. 3 cl., 1 2-hr. lab.*  
*Prereq.: Math. 241 and permission of instructor.*

Advanced programming techniques; computer developments and use in geodesy, photogrammetry and cartography.

- 846 Adjustment Computations** G 5  
*Sp. 4 cl., 1 3-hr. lab.*  
*Prereq.: 513, 522.*

Adjustment by matrices; variances, covariances and correlations; weights; conditions with parameters; combinations of observation, condition and quasi-normal equations; latent roots; generalized matrix algebra.

- 847 Mathematical Projections in Geodesy** G 5  
*A. 4 cl., 1 2-hr. lab.*  
*Prereq.: 631.*

General surface to surface mapping; conformal projections; Transverse Mercator; Lambert conformal conic; transformation equations; ellipsoid to ellipsoid mapping.

- 852 Applications in Electronic Surveying** G 4  
*(759) W. 3 cl., 1 3-hr. lab.*  
*Prereq.: 657.*

Propagation velocity, soil conductivity, ionospheric and ground reflections; curvature of the ray path, correction to spatial chord, reduction on to the ellipsoid; trilateration, control extension.

- 853 Navigation** G 3  
*Sp. 3 cl.*  
*Prereq.: 657.*

Sea, air and space navigation; analysis of instruments, accuracy, range and portability; analysis of environment factors and geometric aspects.

- 863 Gravimetric Geodesy** G 5  
*(751) A. 4 cl.*  
*(851) Prereq.: 846, and Geol. 643.*

Applications of gravimetry in geodesy; classical and modern theories in gravimetric geodesy; the gravitational field of the earth.

- 868 Satellite Geodesy** G 5  
*(855) W. 4 cl., 1 3-hr. lab.*  
*Prereq.: 663.*

The geometrical and dynamic applications of artificial satellites and the moon in geodesy; stellar triangulations.

- 885 Research Principles and Techniques** G 2-9  
*Su, A, W, Sp.*  
*Prereq.: Permission of instructor.*  
*Repeatable to a maximum of 30 cr. hrs.*

- 887 Seminar** G 1-5  
*(795) Su, A, W, Sp.*  
*Prereq.: Permission of instructor.*  
*Repeatable to a maximum of 30 cr. hrs.*

- 994 Special Group Studies in Geodetic Science** G 2-9  
*(794) Su, A, W, Sp.*  
*Prereq.: Permission of instructor.*  
*Repeatable to a maximum of 30 cr. hrs.*

- 999 Research in Geodetic Science** G Arr.  
*(950) Su, A, W, Sp.*  
*Repeatable.*

## Geography

Office: 156 Hagerty Hall, 1775 South College Road

Professors Taaffe (Chairman), Basile, Brown, Carlson (Emeritus), Hunker, King, Randall, Smith (Emeritus), Van Cleef (Emeritus); Associate Professors Casetti, Demko, Gauthier, Gollodge, Patten, Rayner; Assistant Professors Cox, Lentnek, Van Doren, Witthuhn, Downey, Sheck; Lecturer Herman.

- 200 World Regional Geography** U 5  
*(504) Su, A, W, Sp. 5 cl.*

A comparative study of representative regions of the world; an examination of the cultural, social, economic, and political developments in relation to the geographical conditions.

- 220 Introduction to Geography** U 5  
*(401) Su, A, W, Sp. 5 cl.*

The elements of the natural environment, their characteristics, distribution, and significance in the human habitat.

- 240 Economic Geography** U 5  
*(403) Su, A, W, Sp. 5 cl.*  
*Not open to students with credit for 340.*

Geography of the world's principal commodities; a survey of the economic activities of the major political areas in relation to their geographic conditions.

- 340 Fundamentals of Economic Geography** U 3  
*(503) A, W, Sp. 3 cl.*  
*Not open to students with credit for 240.*

Elements of the human habitat with particular emphasis on world resources; geographical and economic factors in the development of the major industrial areas of the world.



**400 Geography of United States and Canada U 3**(505) *Su, A, W. Sp. 3 cl.**Prereq.: 200 or 220 or 240 or equiv.*

A geographical analysis of the United States and Canada; the correlation of their natural resources and other environmental factors with their economic and cultural development.

**401 Geography of Ohio U 3**(605) *Sp. 3 cl.**Prereq.: 200 or 220 or 240 or equiv.*

An appraisal of geographic factors in the development of Ohio's natural resources, agriculture, manufacturing, and commerce; historical development of the major economic factors.

**405 Geography of Latin America U 3**(624) *A, W. 3 cl.**Prereq.: 200 or 220 or 240 or equiv.*

Geographic analysis of Middle and South America emphasizing the interrelationships of the resource base, cultural characteristics, and outside influences upon economic development.

**405.01 Middle America***A.***405.02 South America***W.***408 Geography of Africa U 3**(627) *W. 3 cl.**Prereq.: 200 or 220 or 240 or equiv.*

The African environment and the development of culture and economic life; impact of alien culture in Africa; Islamic and western influences in creating geographic regions.

**410 Geography of Western Europe U 3**(621) *W. 3 cl.**Prereq.: 200 or 220 or 240 or equiv.*

Geographic factors in the economic, social, and political progress of the nations of Western Europe; major problems of the area in the light of their geographic background.

**411 Geography of Eastern Europe U 3**(620) *Sp. 3 cl.**Prereq.: 200 or 220 or 240 or equiv.*

Resources, their assessment, and development, and related problems in Eastern Europe; the geographic significance of each state to the Communist bloc and to the West.

**412 Geography of the Soviet Union U 3**(622) *W, Sp. 3 cl.**Prereq.: 200 or 220 or 240 or equiv.*

The major regional divisions of the Soviet Union; the resource base in relation to the economic and political aims of the Soviet State.

**415 Geography of the Middle East U 3**(626) *W. 3 cl.**Prereq.: 200 or 220 or 240 or equiv.*

The Middle East and its natural regions in relation to local and international problems; physical and cultural patterns in relation to the current economies.

**416 Geography of the Far East U 3**(625) *Sp. 3 cl.**Prereq.: 200 or 220 or 240 or equiv.*

The geographic divisions of southern, southeastern, and eastern Asia; the major activities of the people in the regions of densest population and greatest economic importance.

**520 Climatology U G 4**(615) *A, W. 4 cl.*

The elements and the controls of climate; types of climate and their distribution; climates and their effects on the economic and other activities of man.

**530 Conservation of Natural Resources U G 3**(604) *Su, A. 3 cl.*

Economic and geographic appraisal of resource conservation in the United States; regional and national planning for resource utilization.

**545 Geography of Transportation U G 3**(630) *W. 3 cl.*

A geographical analysis of the nature and distribution of rail, water, highway, pipeline, and air transport facilities and their importance in regional development.

**546 The Historical Geography of Commerce U G 3**(631) *A. 3 cl.*

Geographic factors in commerce to 1900; resources and production in the ancient and medieval world; trade routes and the exchange of goods and ideas.

**560 Political Geography U G 3**(712) *W, Sp. 3 cl.**Prereq.: Permission of instructor.*

The geographical characteristics of nation states; the geographic factors in the evolution, structure, and function of states; the relation of geopolitics to political geography.

**580 An Introduction to Cartography U G 3**(510) *A, W. 3 cl.*

Cartographic techniques, map compilation, scales, generalization, symbolization, grid systems, reproduction, and map-making instruments and equipment.

**612 Special Problems in the Geography of the U.S.S.R. U G 5***Sp. 4 cl.**Prereq.: 412 or permission of instructor.**Repeatable to a maximum of 10 cr. hrs.*

Spatial analysis of selected topical problems in Soviet geography.

**620 Intermediate Climatology U G 3***W, Sp. 3 cl.**Prereq.: 520 or equiv. and permission of instructor.*

Detailed analysis of atmospheric processes, the general circulation and associated macro- and micro-climates; forecasting climatic parameters; applied climatology and bioclimatology; climatic change.

**640 Localization of Manufacturing Industries U G 3**

(603) A. 3 cl.

*Prereq.: Permission of instructor.*

The changing character and concentration of industrial districts; representative industries in relation to labor supply, sources of raw material and power, transportation, and markets.

**647 The Geography of Modern Commerce U G 3**

(633) Su, A, W. 3 cl.

*Prereq.: Permission of instructor.*

Basic factors in foreign and domestic commerce; raw materials and other important commodities in international trade; the development of major trade areas and trade routes.

**650 Urban Geography U G 3**

(634) A, W, Sp. 3 cl.

*Prereq.: Permission of instructor.*

Origin and growth of cities. Structure and function of urban centers, their areal expansion, and intertrade center relations, each examined in relation to city planning.

**660 Intermediate Political Geography U G 3**

Sp. 3 cl.

*Prereq.: 560 or equiv. and permission of instructor.*

Application of spatial analysis and related models, behavioral theory, and quantitative techniques to the study of the spatial dimensions of political activity.

**670 Population Geography U G 3**

A, W. 3 cl.

*Prereq.: 240.*

Analysis of population distributions, locational arrangements of growth, densities, and migration flows; spatial relationships between population variables and social, economic, and environmental factors.

**Natural Resources Problems, Programs, and Policies.***(See Agr. Econ. 680.)***681 Cartography and Map Interpretation U G 3**

(611) W. 3 cl.

Map projections and their uses for particular maps and the map series published by the United States government, by foreign countries, and by private map-producing organizations.

**682 Individual Studies in Cartography U G 3-5**

(709) A, W, Sp. Conf. and lab.

*Prereq.: Permission of instructor.*

Individual study of cartographic subjects: map compilation, map design, color separation, map reliability, analysis of source materials, toponymy, graphical symbolism, physiographic drawing, etc.

**693 Individual Studies U G 3-5**

(701) Su, A, W, Sp.

*Prereq.: Permission of instructor.**Repeatable with permission of instructor.*

Individual study of a special problem or of a particular region.

**694 Group Studies U G 3**

(798) A, W, Sp.

*Prereq.: Permission of instructor.*

Group study of special topics in various fields of Geography.

**Introduction to National Security***(See Nat. Sec. Pol. S. 702)***Research Principles and Techniques in National Security***(See Nat. Sec. Pol. S. 785)***800 Seminars in Regional Geography G 3-5**

(804) A, W, Sp. 2 cl.

Geographical investigation of a selected area; the region under study will be announced.

**Seminar in National Security Research***(See Nat. Sec. Pol. S. 801)***820 Seminars in Physical Geography G 3-5**

(807) A, W, Sp. 2 cl.

820.01 Problems in Climatology

820.02 Problems in Soils Geography

820.03 Special Problems

**840 Seminars in Economic Geography G 3-5**

(803) A, W, Sp. 2 cl.

Readings and research in specific aspects of economic geography.

840.01 Location Theory

840.02 Transportation Theory

840.03 Resource Analysis

840.04 Special Topics

**850 Seminars in Urban Geography G 3-5**

(806) A, W, Sp. 2 cl.

The development of theory in urban geography and its application to selected problems.

850.01 Theory of Urban Geography

850.02 Problems in Urban Geography

**860 Seminars in Political and Historical Geography G 3-5**

(805) A, W, Sp.

Readings and research in political and historical geography.

**880 Cartography and Map Intelligence G 3-5**

(812) Sp.

Readings and research in cartography, graphics, and map intelligence.

**882 Development of Geographic Thought G 4**

(811) Sp. 3 cl.

The evolution of concepts concerning the nature, scope, and methodology of geography; present focus and trends as reflected in current literature.



**883 Application of Quantitative Methods in Geography G 4**

(802) A, W. 2 cl. 2 lab.

*Prereq.: Course in introductory statistics and permission of instructor.*

Application of quantitative methods to geographic problems; spatial statistics, area sampling, maps of residuals, regionalization methods, simulation maps.

To be taken in sequence:

**883.01 Applications I****883.02 Applications II****885 Field Work in Geography G 4**

(700) Sp. 2 cl., Sat. lab.

The practice of field observation and geographic mapping.

**889 Seminars in Geography G 3-5**

(850) A, W, Sp.

Topics to be announced each quarter.

**896 Interdepartmental Seminar in Polar and Alpine Studies G 1-3**

Sp.

(See under Interdepartmental Seminars.)

**897 Interdepartmental Seminar in Natural Resources G 1**

A, W, Sp.

(See under Interdepartmental Seminars.)

**899 Interdepartmental Seminar G 1-5**

Su, A, W, Sp.

Topics to be announced each quarter.

**983 Special Topics in Quantitative Geography G 5**

Sp. 1 3-hr. cl.

*Prereq.: 883.01 and 883.02.*

Repeatable to a maximum of 15 cr. hrs.

Applications of advanced mathematical and statistical models to problems in geographical analysis.

**998 Research in Geography: Thesis G Arr.**

(950) Su, A, W, Sp.

Research for thesis purposes only.

**999 Research in Geography: Dissertation G Arr.**

(950) Su, A, W, Sp.

Research for dissertation purposes only.

## Geology

Office: 107 Mendenhall Laboratory, 125 South Oval Drive

Professors Goldthwait (Chairman), Bates, Bull, Lamey (Emeritus), La Rocque, Moore, Schopf, Spieker (Emeritus), Stephenson, Stewart (Emeritus), Sweet, and White; Adjunct Professor Anderson; Associate Professors Corbato, Faure, Pettyjohn, and Summerson; Assistant Professors Collinson, Fleck, Mayer, Shultz, and Stephens; Instructor Everett.

**100 Introduction to Geology U 5**

(416) Su, A, W, Sp. 4 cl., 1-hr. lab., 1 half-day field trip.

Not open to students with credit for 101, 102, (401), (402), or (451).

Recommended for nonscience majors.

The materials of the earth's crust, the processes that produce and modify them, and the development of the earth and its life forms through time.

**101 Physical Geology U 5**

(417) A, W, Sp. 4 cl., 1 2-hr. lab., 1 half-day field trip.

*Prereq.: Eligibility for Math. 150.*

Not open to students with credit for (401) or (451).

Recommended first course in Geol. for science majors or those with substantial background in science.

Minerals and rocks and their origin; land forms and how they are produced; structural features of the earth's crust.

**102 Historical Geology U 5**

(418) A, W, Sp. 4 cl., 1 2-hr. lab., 1 half-day field trip.

*Prereq.: 100 or 101.*

Not open to students with credit for (402).

The history of the earth and its inhabitants through geologic time.

**201 Invertebrate Paleontology U 5**

(520) Sp. 5 cl.

*Prereq.: 102.*

A systematic survey of groups of the invertebrate animals significant in the geologic record. La Rocque and Sweet.

**202 The Common Minerals and Rocks U 3**

(524) W. 3 2-hr. labs.

*Prereq.: 101 and Chem. 121.*

Not open to Geol. majors or students with credit for 203.

A study of the common minerals and rocks, their associations, occurrences, identifying properties, and origin. Moore.

**203 The Common Rocks U 3**

(525) Sp. 3 2-hr. labs.

*Prereq.: 101 or (401) or (451) and Mineral. 412 or 422.*

Not open to students with credit for 202.

A study of the common rocks, their associations and occurrences, and elementary concepts regarding their origin. Moore.

**204 Water Resources U 5**

(533) W. 5 cl., 2 ½-day field trips.

*Prereq.: 100 or 101.*

Occurrence, movement and behavior of water in the hydrologic cycle with reference to scientific and technological problems relating to water-resources development and conservation. Pettyjohn.

**205 Quantitative Methods in Geology U 3**

A. 2 cl., 1 2-hr. lab.

Prereq.: 101; 102 or concur. and Math. 151 or concur.; or permission of instructor.

Introduction to quantitative methods and techniques, both graphic and mathematical, and their application in the analysis of geologic data. *Corbató*.

**Elementary Mineralogy and Crystallography**

(See Mineral. 421.)

(Offered in cooperation with the Department of Mineral.)

**Elementary Optical Mineralogy**

(See Mineral. 422.)

(Offered in cooperation with the Department of Mineral.)

**502 Stratigraphy and Paleontology U G 5**

A. 6 days in field in late Su. or just preceding A.; 2 2-hr. labs. and field trips in A.

Prereq.: 102, 203, 205, and 10 cr. hrs. biological science.

Principles of, and procedures in, lithostratigraphy and biostratigraphy, illustrated by field and laboratory studies of sedimentary rocks and fossils. *Collinson, Summerson, and Sweet*.

**530 Structural Geology U G 5**

(602) W. 4 cl., 1 2-hr. lab.

Prereq.: 205 and Physics 231.

Not open for graduate credit to Geol. majors.

A study of the principal kinds of geologic structure and their interpretation. *Fleck and Moore*.

**550 Geomorphology U G 5**

(601) A. 4 cl., 1 2-hr. lab., field trips.

Prereq.: 101 or permission of instructor.

Not open for graduate credit to Geol. majors.

Detailed study of processes that shape the land surface and the forms produced; these are inspected on topographic maps, aerial photographs, and in the field. *White*.

**560 Mineral Deposits and their Formation U G 5**

(600) A. 3 cl., 1 2-hr. lab.

Prereq.: 203.

Not open to students with credit for (526).

A study of the components of the common mineral deposits, their associations and relations; elementary concepts regarding origin of mineral deposits. *Faure*.

**570 Senior Thesis U G 1-3**

Su, A, W, Sp.

Prereq.: Senior standing in Geol.

Repeatable to a maximum of 3 cr. hrs.

The preparation of a report of professional quality, based on a research project.

**580 Field Work in Earth Science U G 5**

(632) Su. (1st term). Requires full time of student for 5 weeks.

Prereq.: 30 qtr. hrs. in Geol., Geog., Astron. or Meteor. with a minimum of 15 qtr. hrs. in Geol.; Ed. 604 and permission of instructor; Geol. 201, 202, and 550 recommended.

Not open for graduate credit to Geol. majors.

Essentials of field observation, mapping and data accumulation in the solution of earth-science problems; the work is done in selected off-campus field localities. *Bates and Mayer*.

**581 Field Geology I U G 5**

(627A) Su. (1st term). Requires full time of student.

Prereq.: 203, 205, and permission of instructor; 530 recommended.

Not open to students with credit for 581.01 or for graduate credit to Geol. majors.

Concentrated training in the basic essentials of field observation and mapping; the work is done in central Utah, with headquarters in Ephraim. *Collinson*.

**582 Field Geology II U G 5**

(627B) Su. (2nd term). Requires full time of student.

Prereq.: 581.

Not open to students with credit for 581.02 or for graduate credit to Geol. majors.

Continuation of 581.

**600 Sediments and Sedimentary Rocks U G 5**

A. 3 1½-hr. cl.

Prereq.: 502.

The sources, dispersal, and accumulation of sediments and sedimentary rocks. *Summerson*.

**601 Optical Analysis of Sedimentary Rocks U G 5**

Sp. 1 cl., 2 3-hr. labs.

Prereq.: 600 and Mineral. 621.

Preparation and study of thin sections, grain mounts, and polished sections. *Everett and Moore*.

**602†\* Mechanical Analysis of Sediments U G 3**

(713) W. 2 cl., 1 3-hr. lab.

Prereq.: 600.

The theory and application of various techniques in the laboratory study of sediments and sedimentary rocks, chiefly by nonmicroscopic methods. *Summerson*.

**610 Advanced Invertebrate Paleontology U G 5**

(624) A. 3 2-hr. labs.

Prereq.: 201 or 502.

Laboratory study of fossil faunas, including paleontological techniques and procedures. *La Rocque*.

**611 Micropaleontology U G 5**

(623) Sp. 2 cl., 3 2-hr. labs.

Prereq.: 201 or 502.

A study of fossil microorganisms, especially the foraminifera, ostracodes and conodonts; structure, habits, taxonomic relationships, and phylogenetic development; preparation of faunas and their use in stratigraphic correlation. *Sweet*.

**612\* Vertebrate Paleontology U G 5**

(622) W. 3 cl., 2 2-hr. labs.

Prereq.: 4th yr. standing in biological science or Anat.; or 201 or 502 and Zool. 101 or (401).

A study of the phylogenetic development of the fossil vertebrates throughout geologic time; the evolution of the vertebrate skeleton and various paleoecologic relationships. *Stephens*.



**613\* Paleobotany U G 5**

(625) Sp. 2 cl., 2 3-hr. lec. and labs., 1-day field trip.  
Prereq.: 100 and 10 cr. hrs. in biological science.

Terrestrial importance of plants, history of the plant kingdom, and evolution of major groups; laboratory demonstration of plant fossils, their preservation, and methods of preparation. *Schopf*.

**620 Introduction to Isotope Geology U G 5**

(740) W. 5 cl.

Prereq.: Senior standing in Geol., Mineral., or related fields.

Theory of natural isotope abundance variations and applications to problems in the earth sciences. *Faure*.

**621 Introduction to Geochemistry U G 5**

A. 5 cl.

Prereq.: Senior standing in Geol., Mineral. or related fields; Chem. 122 or equiv.

Applications of the law of mass action and chemical thermodynamics to mineral equilibria of geological and geochemical interest. *Faure*.

### Practicum in the Earth Sciences for Teachers

(See Ed. 626.)

(Offered in cooperation with the School of Ed.)

**630\* Analysis of Structural Problems U G 3**

(725) A. 3 2-hr. lab.

Prereq.: 502 and 530.

Solution of structural problems by stereographic projection and other methods; structural interpretation of isopach, paleogeologic, facies, and other maps; solution of areal and resource problems. *Fleck*.

**631\* Glaciology U G 4**

(708) A. 2 2-hr. cl.

Prereq.: 530, Mineral. 421, or permission of instructor.

Types of glaciers, their feeding, mass budget, climatic relations, motion, and existing structures. *Bull*.

**632 Topics in Oceanography and Marine Geology U G 3**

(780) Sp. 3 cl.

Prereq.: Senior standing in Geol. or permission of instructor.

Lectures and seminars on the origin, development, and structure of ocean basins and their contents, and on contemporary oceanic processes of geological significance. *Anderson*.

**640\* Fundamentals of Geophysics U G 5**

(834) A. 4 cl., 1 2-hr. lab.

Prereq.: 100 or 101 or (401) or (451) and one of Physics 112, 113, 232, 233.

Analytical treatment of the methods of gravimetry, seismology, terrestrial electricity, terrestrial heat and geomagnetism. The structure, composition and history of the earth. *Bull and Corbato*.

**643 Geophysics, Gravimetry U G 3**

(735) A. 3 cl.

Prereq.: 4th yr. standing in Geol.; or 4th yr. standing in Geod. Sci., Physics, Civil E., or Petr. E. and one of 100, 101, (401), (435), (451).

Analytical treatment of concepts and methods of gravimetry; introductory theory of the gravitational potential; geological interpretation of gravity data. *Bull*.

**644†\* Advanced Geophysics U G 3**

(736) A. 3 cl.

Prereq.: 640 or permission of instructor.

A study of selected topics and problems in geophysics. *Bull and Corbato*.

**650 Glacial Geology U G 5**

(813) Sp. 5 cl., field trips.

Prereq.: 550.

The features produced by glaciers, present or past, with special reference to features produced in Ohio. *Goldthwait*.

**651 Hydrogeology U G 5**

(837) Sp. 5 cl. 2 ½-day field trips.

Prereq.: Senior standing in Geol.; or 4th yr. standing in Engr. and 101; or 101 and 204.

Geologic and hydrologic factors controlling the occurrence and behavior of ground water *Pettyjohn*.

**652†\* Engineering Geology U G 5**

(836) W. 5 cl.

Prereq.: 4th yr. standing in Civil E., or Petr. E. or 530 or concur. 530.

Principles and techniques of geology in support of engineering.

**660 Economic Geology: Metals U G 5**

(805) W. 5 cl.

Prereq.: (528) or 560.

A study of the characteristics and origin of metallic mineral deposits. *Shultz*.

**661 Economic Geology: Petroleum U G 5**

(807) W. 3 cl., 2 2-hr. labs.

Prereq.: Senior standing in Petr. E. or 502 and 530.

A study of the principles of petroleum geology. *Bates*.

**662\* Economic Geology: The Industrial Minerals U G 3**

(709) A. 3 cl.

Prereq.: (528) or 580.

Not open to students with credit for (608).

The occurrence, origin, and distribution of the nonmetallic or industrial minerals, and their properties and uses. *Bates*.

**663†\* Coal Geology U G 3**

(705) Sp. 2 cl., 2 2-hr. lec. and demonstration.

Prereq.: Permission of instructor.

Origin, occurrence, and variation in carbonaceous deposits; geology and economic application of coal; analytic and resources data. *Schopf*.

**670 Regional Geology U G 5**

W. 5 cl.

Prereq.: 502, 530, and 550.

Geology of a selected region, such as the Appalachian Mountains or the Western Cordillera, developed by study of stratigraphy, structure, and geomorphic history. *Collinson, Fleck, and White*.

**680\* Stratigraphic and Economic Geology of Ohio U G 5**

(708) A. 10-day period preceding A.; post-trip readings and report.

Prereq.: 502 or permission of instructor.

Not open to students with credit for (808).

Concentrated field study of Ohio Paleozoic rocks and their economic products. *Bates, Summerson, and Sweet*.

**681†\* Appalachian Geology U G 5**

A. 10-day period preceding A.; post-trip readings and report.

Prereq.: 502 or permission of instructor.

Concentrated field study in a selected area of the Appalachian Mountains or adjacent regions. Bates and Shultz.

**693 Individual Studies in Geology U G 1-5**

(701) Su, A, W, Sp.

Prereq.: Permission of instructor.

Special problems in any branch of geology for which the student has the proper qualifications.

- 693.01 Economic Geology
- 693.02 Engineering Geology
- 693.03 Extraterrestrial Studies
- 693.04 Field Geology
- 693.05 Geochemistry
- 693.06 Geomorphology
- 693.07 Geophysics
- 693.08 Glaciology and Glacial Geology
- 693.09 History of Geology
- 693.10 Hydrogeology
- 693.11 Marine Geology, Limnology, and Oceanography
- 693.12 Paleontology
- 693.13 Petrology and Petrography
- 693.14 Photogeology
- 693.15 Sedimentation
- 693.16 Stratigraphy
- 693.17 Structural Geology
- 693.18 Earth Science Education
- 693.19 Unspecified

**695 Paleocology U G 5**

(855) W. 5 cl.

Prereq.: 610 or 611 or 612 or 613.

A study of the principles of paleocology with illustrations from the literature and selected faunules. LaRocque.

**Igneous Petrology**

(See Mineral. 722.)

(Offered in cooperation with the Department of Mineral.)

**810 Graduate Seminar in Paleontology G 5**

A, W, Sp. 5 cl.

Prereq.: 502; 610 or 611 or 612 or 613.

Repeatable to a total of 20 cr. hrs.

Advanced topics in paleozoologic and paleobotanic morphology, taxonomy, and procedure; current questions in biostratigraphy, paleocology, and evolutionary development of fossil floras and faunas. LaRocque, Schopf, Stephens, and Sweet.

**820 Metamorphic Petrology G 5**

Sp. 3 cl., 2 3-hr. labs.

Prereq.: Mineral. 722.

Not open to students with credit for (609) or (815).

(Offered in cooperation with the Department of Mineral.)

The origin, occurrence, and associations of metamorphic rocks including the problem of granitization; chemical calculations and laboratory study of hand specimens and thin sections. Ehlers and Shultz.

**821\* Advanced Topics in Isotope Geology and Geochemistry G 3**

Sp. 3 cl.

Prereq.: 620 and 621.

Discussion of selected topics in cosmochemistry, geochronology and geochemistry with emphasis on research problems. Faure.

**830†\* Advanced Structural Geology G 3**

(825) A. 3 cl.

Prereq.: 530.

Recognition and interpretation of geological structures; application of theoretical analysis, field observation, and experimental methods to selected problems. Fleck.

**850\* Advanced Geomorphology G 3**

(827) W. 3 cl.

Prereq.: 550.

A seminar devoted to current and classical problems in geomorphology such as the origin of submarine canyons or pediments. Goldthwait.

**851\* Advanced Hydrogeology G 5**

Sp. 5 cl., 3 ½-day field trips.

Prereq.: 651, Math. 152, Civil E. 613.

Quantitative studies of groundwater hydrology with special emphasis on well hydraulics and related geology. Pettyjohn.

**870†\* Precambrian Geology G 3**

(820) Sp. 4 cl.

Prereq.: 502 and 530.

A study of the principles of Precambrian geology, and the Precambrian geology of important areas. Faure.

**871\* Paleozoic Geology G 3**

(821) W. 3 cl.

Prereq.: 502 and 530.

A study of the Paleozoic systems of the United States, subdivision, faunal sequences, and correlation with homotaxial deposits abroad. Bates.

**872\* Mesozoic and Cenozoic Geology G 3**

(822) W. 3 cl.

Prereq.: 502 and 530.

A study of the outstanding Mesozoic and Cenozoic sections of the world, with emphasis on principles of nomenclature, subdivision, correlation, and interpretation. Collinson.

**873†\* Quaternary Geology G 3**

(823) W. 3 cl.

Prereq.: 650.

Chronology of Pleistocene glacial and interglacial events throughout the world; the use of animal and plant remains, soils, and radiocarbon in determining this chronology. Goldthwait.

**874 Seminar in the History of Geology G 3**

(851) Sp. 3 cl.

Discussion of the development of geology, intended to give the student a firm basis for comprehension of the science as it exists today. LaRocque.

**880 Field Geology for Science Teachers G 3**

(630) Sp. 5-day period during recess between W. and Sp.; pre-trip meeting and post-trip report.

Prereq.: 100.

Open only to students registered in the Academic Year Institute, or permission of instructor.

Not open to Geol. majors.

Application of geological principles in the field; interpretation of earth features observable on a traverse crossing the Appalachian Mountain system. Bates and Mayer.



- 896 Interdepartmental Seminar in Polar and Alpine Studies G 1-3  
Sp.  
(See under Interdepartmental Seminars.)

- 999 Research in Geology G Arr.  
(950) Su, A, W, Sp.  
Research for thesis and dissertation purposes only.

## German

Office: 213 Derby Hall, 154 North Oval Drive

Professors Cunz (Chairman), Bekker, Fleischhauer, Hoffmann, Mahr (Emeritus), Seidlin (Regents) and Wittkowski; Associate Professors Gottwald and Haas; Assistant Professors Belkin, Edse, Goodman, Gray, Nelson, and Vitt; Instructors Ahrens, Chadeayne, Chaner, Glinsky, and Richeimer.

**PLACEMENT AND PROFICIENCY EXAMINATIONS**  
Students with two years of high school German register for German 103; however, in order to insure proper registration, placement tests are required of all students who continue their study of German in the department after beginning their language in high school. Such tests are given on the first day of instruction in each quarter. Consult Humanities College catalog.

Students who are given advanced standing in the department as a result of the placement and proficiency examination become eligible for University credit.

### EXCESS ENTRANCE CREDITS IN GERMAN

Freshmen who have excess credits in foreign language are eligible for examination for advanced standing. The examination is given at the same time as the placement tests mentioned above.

- 101 Elementary German U 5  
(401) Su, A, W, Sp. 5 cl.  
Credit in 101 will be counted toward graduation only if followed by successful completion of 102, or if taken after successful completion of the fourth regular University Course in another foreign language.
- 102 Elementary German U 5  
(402) Su, A, W, Sp. 5 cl.  
Prereq.: 101 or equiv.
- 103 Intermediate German U 5  
(403) Su, A, W, Sp. 5 cl.  
Prereq.: 102 or equiv.  
Reading of narrative prose; oral and written practice; grammar review.
- 104 Intermediate German U 5  
(404) Su, A, W, Sp. 5 cl.  
Prereq.: 103, 113, or 112.  
Reading of narrative prose; oral and written practice; vocabulary building.
- 109 Elementary German Conversation U 2  
(409) Su, A, W, Sp. 2 cl.  
Prereq.: 102; also open to students with grade of "A" in 101. No audit.

- 112 Intensive German U 5, 10, 15  
(412) Su. Enrollment limited to 20 students.  
Prereq.: Permission of chairman.  
Full time of student and full fees required.  
Students with credit for 101 or the equiv. may not register for more than 10 cr. hrs. Students with credit for 101 and 102 or the equiv. may not register for more than 5 cr. hrs. Students with credit for 103 or the equiv. may not register for credit. Register before May 11.

Elementary and intermediate German for students desiring comprehensive knowledge of German in shortest possible time; students will devote their entire time to this course.

- 113 Intermediate Scientific German U 5  
(420) A, Sp. 5 cl.  
Prereq.: 102.  
Not open to students with credit for 103.

Reading of narrative prose; oral and written practice; introductory readings in scientific German.

- 114 Intermediate Scientific German U 5  
(421) A, W. 5 cl.  
Prereq.: 113, 103, or 112.  
Not open to students with credit for 104.  
Readings in scientific German.

- 117 Elementary-Intermediate German U 5  
for Selected Students  
(417) W. 5 cl.  
Prereq.: Grade of A in 101.

- 118 Elementary-Intermediate German U 5  
for Selected Students  
(418) Sp. 5 cl.  
Prereq.: 117  
Successful completion of the sequence 101-117-118 fulfills language requirements and provides eligibility for 200 courses.

Continuation of 117.

- 203 Intermediate German U 3  
Conversation  
(503) Su, A, W, Sp. 3 cl.  
Prereq.: 104 and 109 or equiv. with a minimum grade of C. 203 may be taken concur. with 204.  
No audit.

Practice in spoken everyday idiomatic German, based on texts concerning German life today.

- 204 German Composition I U 2  
(504) A, W, Sp. 2 cl.  
Prereq.: 104 and 109 or equiv. with a minimum grade of C. 204 may be taken concur. with 203.  
No audit.

Practice in simple writing with some conversation.

- 205 German Composition II U 2  
W, Sp. 2 cl.  
Prereq.: 204.

Themes, reports, translations of difficult texts.

- 211 German Review Grammar U 3  
(502) A. 3 cl.  
Prereq.: 104, 118, or equiv.  
Not open to students with credit for 119.  
Syntax and structure of the language.

**225 Introduction to German Literature: The Classical Period U 5**(575) *A, W, Sp. 5 cl.**Prereq.: 104, 118, or equiv.**Students are advised to register also for 203, 204.**Readings from Goethe and Schiller.***226 Introduction to German Literature: The Nineteenth Century U 5**(576) *A, W, Sp. 5 cl.**Prereq.: 225 or equiv.**Students are advised to register also for 203, 204.**Readings from Brentano, Hoffmann, Storm, and Keller.***227 Introduction to German Literature: The Twentieth Century U 5**(577) *A, W, Sp. 5 cl.**Prereq.: 226 or equiv.**Students are advised to register also for 203, 204.**Readings from representative authors such as Mann, Schnitzler, Duerrenmatt.***261 German Classics in Translation U 3***A. 3 cl.**Not for credit on a major in Ger.**Social and intellectual forces in Germany as reflected in German literature from the Enlightenment to the middle of the nineteenth century; masterpieces from Goethe to Gottfried Keller. Seidlín.***262 Modern German Literature in Translation U 3***W. 3 cl.**Not for credit on a major in Ger.**Intellectual forces and literary trends in German literature from the end of the nineteenth century to the present; masterpieces from Gerhart Hauptmann to Bertolt Brecht. Hoffmann.***361†\* German Civilization I U 3**(571) *A. 3 cl.**Taught in Engl.**The cultural heritage of the German people from the beginning to about 1800; institutions, phases of civilization, interrelationship of social and literary history. Cuns.***362†\* German Civilization II U 3**(572) *W. 3 cl.**Taught in Engl.**German civilization from Luther to the Age of Goethe; cultural trends, social changes, historical development to the end of the Holy Roman Empire. Cuns.***409 Advanced German Conversation U 3***W. 3 cl.**Prereq.: 203.***571 Basic German for Graduate Students G 5**(499) *Su, A, W, Sp. 5 cl.**Prereq.: Graduate standing.**Credit does not apply to the minimum hours required for the Master's or doctoral degrees. No audit.**The fundamentals of German grammar, as required for the reading of German texts in the sciences and humanities. Gottwald.***572 German for Research I G 3**(501) *Su, A, W, Sp. 3 cl.**Prereq.: Grade of "C" or above in 571 or equiv. preparation demonstrated by a placement test.**Open only to graduate students. Credit does not apply to the minimum hours required for the Master's or doctoral degrees. No audit.**Repeatable twice.**Satisfactory completion of this course (grade of "A" or "B") will be accepted as evidence of a dictionary reading knowledge in fulfillment of Ph.D. language requirement. Gottwald.***573 German for Research II G 3***Su, A, Sp. 3 cl.**Prereq.: Grade of "A" or "B" in 572, or equiv. preparation demonstrated by a placement test and permission of instructor.**Open only to graduate students. Credit does not apply to the minimum hours required for the Master's or doctoral degrees. No audit.**Reading of difficult material at a reasonable rate of speed and with only infrequent use of dictionaries. Completion of this course with a grade of "A" or "B" will be accepted as evidence of a thorough reading knowledge of German. Gottwald.***GENERAL PREREQUISITES FOR COURSES  
NUMBERED 600***Unless otherwise indicated, the prerequisites for 600 courses are 10 hours of the sequence 225-227 plus at least 5 hours from the courses 203-205. Exceptions may be allowed by instructors for students with special qualifications.***605†\* Introduction to the Study of Language U G 3**(705) *Sp. 3 cl.**Elements of linguistics with emphasis on the historical study of languages and on semantics; the position of Germanic in the Indo-European family of languages. Groenke.***606\* Introduction to the Historical Study of German U G 3**(656) *Sp. 3 cl.**The historical development of the German language, with a short survey of the Germanic languages; internal and external influences which have determined its characteristics (phonology, morphology, vocabulary). Belkin.***611 Medieval German Literature U G 3***A. 3 cl.**Survey of German literature from the eighth century to the end of the Middle Ages. Belkin.***612 Literature of Humanism, Reformation, and Baroque U G 3***W. 3 cl.**Survey of German literature from 1400 to 1700. Bekker.***621 The German "Novelle" U G 3**(661) *Sp. 3 cl.**Reading and analysis of masterpieces of the 19th and 20th centuries: Kleist, Eichendorff, Stifter, Keller, Thomas Mann. Seidlín.*



**622 The German Drama U G 3**

(662) W. 3 cl.

Reading and analysis of masterpieces of the 19th and 20th centuries: Schiller, Kleist, Grillparzer, Hebbel, Brecht. *Wittkowski.*

**623 German Lyrics U G 3**

(663) A. 3 cl.

Analysis of German lyrics from 1200 to the present; study of specific forms: Volkslied, ballad, sonnet, and individual great lyricists. *Hoffmann.*

**630 Advanced German Composition U G 3**

(685) W, Sp. 3 cl.

Prereq.: 205, 211, or permission of instructor.

Composition on assigned topics and practice in translation. *Haas.*

**635 Practical German Pronunciation U G 3**

(691) Sp. 2 2-hr. cl.

Prereq.: Permission of instructor.

Standard German pronunciation; oral and written drill. *Fleischhauer.*

**650 Proseminar U G 1 or 3**

Su. 3 cl., 3 cr. hrs.

Su. (first term). 3 cl. 1 cr. hr.

Repeatable to a maximum of 24 cr. hrs.

**693 Individual Studies in German U G 2-5**

(701) A, W, Sp.

Prereq.: Permission of chairman.

Repeatable to a maximum of 30 cr. hrs.

Investigation of minor problems in the various fields of German literature and philology.

**694 Special Group Studies in German U G 2-5**

Su, A, W, Sp.

Prereq.: Permission of chairman.

Repeatable to a maximum of 30 cr. hrs.

Investigation of minor problems in the various fields of German literature and philology.

### GENERAL PREREQUISITES FOR COURSES NUMBERED 700

Prerequisites for 700 courses are graduate standing, or 4th year standing with 9 cr. hrs. in German at the 600 level, and permission of department chairman.

**721\* German Literature of the Eighteenth Century U G 4**

A. 4 cl.

The literature of the Enlightenment and Storm and Stress; Lessing, Klopstock, Wieland, young Goethe and Schiller. *Cunz.*

**722\* German Classical Literature U G 4**

W. 4 cl.

Achievement of Goethe's and Schiller's major works; their significance for modern times. *Seidlin.*

**723\* Goethe's Faust U G 3**

Sp. 3 cl.

History of the Faust legend from the sixteenth century to Goethe. Reading and discussion of the play. *Wittkowski.*

**724†\* German Romanticism U G 4**

W. 4 cl.

The romantic revolt against the ideas of classicism. Novalis, the Schlegels, Tieck, Kleist, Eichendorff, E. T. A. Hoffmann. *Seidlin.*

**725†\* German Literature of the Nineteenth Century U G 4**

A. 4 cl.

Literary forces and trends from Goethe's death to the founding of the German Reich (Grillparzer, Buechner, Hebbel, Raimund, Moerike, Stifter, Keller, Meyer). *Wittkowski.*

**726†\* Modern German Literature U G 4**

Sp. 4 cl.

Main currents of German thought and literature from Nietzsche to the present; Hauptmann, Schnitzler, Mann, Rilke, George, Hofmannsthal, Kafka, Brecht. *Hoffmann.*

**800 Bibliography and Method G 3**

A. 2 cl.

Prereq.: Graduate standing.

Required of all candidates for graduate degrees.

The tools, problems, and methods of literary research. *Belkin.*

**801†\* Middle High German G 5**

A. 5 cl.

Middle High German texts. Methods of textual criticism. *Fleischhauer.*

**802†\* Old High German G 3**

(805) W. 3 cl.

*Fleischhauer.*

**803†\* Gothic G 3**

(810) Sp. 3 cl.

*Fleischhauer.*

**806\* History of the German Language G 3**

(815) Sp. 3 cl.

Prereq.: 801.

Basic concepts of historical linguistics; the major factors of change in the history of German from Proto-Germanic to the present. *Fleischhauer.*

**821\* History of German Literature Until 1700 G 3**

A. 3 cl.

Prereq.: Graduate standing.

Readings from the earliest period to the end of the 17th century. *Fleischhauer.*

**822\* History of German Literature Until 1700 G 3**

W. 3 cl.

Prereq.: Graduate standing.

Continuation of 821. *Bekker.*

**823\* History of German Literature Until 1700 G 3**

Sp. 3 cl.

Prereq.: Graduate standing.

Continuation of 822. *Bekker.*

**860 Seminar in German Literature** G 5  
Su, A, W, Sp. 2 cl.

Selected topics from German Literature after 1600; problems of methods and interpretation.

**870 Seminar in German Linguistics** G 3  
A, W. 2 cl.

Selected topics from medieval literature, word history, stylistics, and psychology of language.

**999 Research in German** G Arr.  
(950) Su, A, W, Sp.

Research for thesis and dissertation purposes only.

## Graduate School Course

Office: 110 Denny Hall, 164 West 17th Avenue

**801 College Teaching** G 2  
(701) W, Sp. 2 cl.

Prereq.: Permission of director of course.

Designed to acquaint prospective college teachers with the major problems involved in college teaching. Austin.

## Greek

Office: 217 Derby Hall, 154 North Oval Drive

Associate Professor Morford (Acting Chairman); Professors Abbott, Babcock, Forbes, W. R. Jones, and Titchener; Associate Professor Lenardon; Assistant Professors Barmann, Davis, Holsinger, and Schlam.

See also Classics.

**101 Elementary Greek** U 5  
(401) A. 5 cl.

Credit in 101 will count toward graduation only if followed by successful completion of 102, or if taken after successful completion of the fourth regular University course in another foreign language.

**102 Elementary Greek** U 5  
(402) W. 5 cl.  
Prereq.: 101.

**103 Intermediate Greek Reading** U 5  
(403) Sp. 5 cl.  
Prereq.: 102.

**112 Intensive Introduction to Greek** U 5, 10, 15  
(415)

Su. 10 cl. and 10 or more hrs. of supervised study. Full time of student and full fees required. Equiv. of 101, 102 and 103. Students with credit for 101 or the equiv. may not register for more than 10 cr. hrs. Students with credit for 101 and 102 or the equiv. may not register for more than 5 cr. hrs. Students with credit for 103 or the equiv. may not register for credit.

**210† New Testament Greek** U 5  
(506) A. 5 cl.

Prereq.: 103 or 112.

Intended primarily for pre-theological students.

**221 Attic Prose** U 5  
A. 5 cl.

Prereq.: 103 or 112.

**222 Euripides** U 3  
(607) W. 3 cl.

Prereq.: 210 or 221.

Not open to students with credit for 202.

**223 Homer** U 3  
(504) Sp. 3 cl.

Prereq.: 210 or 221.

Not open to students with credit for 200.

Davis.

**603\* Demosthenes** U G 3  
W. 3 cl.

Prereq.: 2 courses at 200 level.

Morford.

**604\* Herodotus** U G 3  
A. 3 cl.

Prereq.: Two courses at 200 level.

Not open to students with credit for 201 except by permission of chairman.

Barmann.

**605†\* Aristophanes** U G 3  
W. 3 cl.

Prereq.: Two courses at 200 level.

**606\* Sophocles** U G 3  
Sp. 3 cl.

Prereq.: 2 courses at 200 level.

Forbes.

**608†\* Thucydides** U G 3  
Sp. 3 cl.

Prereq.: 2 courses at 200 level.

**609†\* Plato** U G 3  
Sp. 3 cl.

Prereq.: 2 courses at 200 level.

**612 Greek Prose Composition** U G 3  
W.

Prereq.: At least one course at 600 level.

Barmann.

**645 Post-Hellenistic and Early Byzantine Greek** U G 3  
Sp.

Prereq.: Two courses at 200 level.

Barmann.

**693† Individual Studies in Greek** U G 1-6  
(631) A, W, Sp.

Prereq.: 2 courses at 600 level, or permission of instructor.

Repeatable to a maximum of 15 cr. hrs.

Passages for reading and topics for investigation will be selected to meet the needs of individual students.



# GENERAL PREREQUISITES FOR COURSES NUMBERED 800 AND ABOVE

Prerequisites for admission to courses numbered 800 and above are graduate standing and permission of the Chairman.

## 800 Proseminar G 3

A.

Required of all Graduate Students. Students may not receive credit for both Latin 800 and Greek 800.

An introduction to the materials and methods of research; the history of classical scholarship; individual assignments in bibliographical problems. *Forbes.*

## 803† Sophocles G 4

Sp.

*Forbes.*

## 810† Structure of the Greek Language G 3

(870) W. 3 cl.

## 811 Greek Dialects G 4

A.

## 831 Homer and the Homeric Language G 4

A.

*Forbes.*

## 832 Hesiod G 4

W.

*Barmann.*

## 833† Pindar G 4

A.

## 834 Aeschylus G 4

Sp.

*Lenardon.*

## 835 Aristotle G 4

Su.

## 836† Hellenistic Poetry G 4

Sp.

## 850† History of Greek Literature G 4

(705) A.

Lectures and assigned reading on the development of Greek literature; required and suggested passages for translation in each author studied. *Jones.*

## 851† History of Greek Literature G 4

(706) W.

Continuation of 850. *Forbes.*

## 852† History of Greek Literature G 4

(707) Sp.

Continuation of 851. *Barmann.*

## 993† Individual Studies in Greek G 1-4

A, W, Sp.

Repeatable to a maximum of 20 cr. hrs.

Assigned readings; individual research in disciplines such as epigraphy, topography, papyrology, linguistics, etc. *Lenardon.*

## 995 Seminar G 5

W.

Repeatable to a maximum of 20 cr. hrs.

Credit in this course will be granted only with the completion of 996.

The seminar will normally consist of a two-term sequence (A-W, W-Sp); an intensive study of an author of a genre, e.g., Aeschylus, Thucydides, Hellenistic Poetry. Topic for 1968-69: Lyric Poetry. *Jones.*

## 996 Seminar G 5

Sp.

Prereq.: 995.

Repeatable to a maximum of 20 cr. hrs.

Continuation of 995.

## 999 Research G Arr.

A, W, Sp.

Repeatable.

Research for thesis and dissertation purposes only.

## Health Education

Offices: Coordinator of 101 (Men and Women), 315 Pomerene Hall, 1760 Neil Ave; Men—124 Physical Education Bldg., 337 West 17th Ave; Women—315A Pomerene Hall, 1760 Neil Ave

Professors: Beyrer and Cushman; Associate Professors Fogle and Kaplan; Assistant Professors Gotta and Hukill; Instructors Abbott, Brannan, and Cooley.

## 101 Hygiene U 1

(400) Su, A, W, Sp. 1 cl., 1 lab. hr.

Required of all freshmen except those who take 200.

Not open to majors or minors in Phys. Ed., and Dent. Hyg. Ed.

Designed to influence knowledge, attitudes, and behavior related to individual health.

## 102 First Aid U 1

(473) Su, A, W, Sp. 2 cl., lab.

A consideration of first aid practices to the injured. Completion leads to Red Cross certificates in first aid.

## 103 Health for the College Student U 3

Su, A, W, Sp. 3 cl.

May be substituted for Health Ed. 101 to fulfill University requirement.

A study of student health problems; designed to foster understandings and attitudes needed for intelligent decision-making related to present and future health needs.

**200 Hygiene U 5**

(510) A, W, Sp. 5 cl.

*Required of all students in Health Ed., Dent. Hyg. Ed., and Phys. Ed. curricula.*

Designed to establish a basis for positive health and efficiency through a consideration of various conditions and factors which affect health.

a. Men.

b. Women.

**201 Current Concepts in Community Health U 3**

W, Sp. 3 cl.

*Prereq.: 101 or equiv.*

A study of community health programs, the need for them, the problems and issues involved, and how these problems can be solved.

**300 Health Education for Elementary Teachers U 3**

(609) Su, A, W, Sp. 3 cl.

*Prereq.: 101 or equiv. and Psychol. 230.**Not open to undergraduate minors or majors in Phys. Ed., or Health Ed.*

The teacher's responsibility for health of school child. Screening, referral, vision and hearing, nutritional problems, instructional programs, emergency care, teacher's health.

**301 Health Education for Secondary Teachers U 3**

(610) Su, A, W, Sp. 3 cl.

*Prereq.: 101 or equiv. Psychol. 230 and Ed. 435.**Not open to students preparing for secondary school teaching of Health Ed. or Phys. Ed.*

A study of health problems as they relate to the individual secondary school students; emphasis on the role of the teacher in the secondary school health program.

**501† The School of Health Program U 5**

W. 5 cl.

A consideration of the total school health program including healthful school living, health services, and the teaching of health.

**602 Personal Health Problems U G 3**

(641) Su, A. 3 cl.

An advanced course in personal health problems; extensive reading and reporting in selected health areas. *Cushman and Beyrer.*

**603 Current Progress in Disease Control U G 2**

(705) Sp. 2 cl.

*Prereq.: 4th yr. or graduate standing in a health science area.*

Authorities in medicine and health sciences will interpret how current findings may affect disease prevention and control; newer knowledge of cancer, dental caries etc., will be discussed. *Cushman and Fogle.*

**610 The Teaching of Health U G 4**

(644) Su, W, Sp. 5 cl.

*Prereq.: 200 or equiv.*

Principles, methods, materials, and resources involved in teaching health; direct, correlated, and integrated curriculum patterns; individual teaching experience. *Cushman, Beyrer, and Kaplan.*

**620 Organizational Relationships in School Health Education U G 3**

(645) Su, W, Sp. 3 cl.

*Prereq.: 621.*

The relation of the school health program to the total community health program; official and non-official health agencies are studied. *Beyrer.*

**621 School Health Services U G 3**

(692) Su, A, W. 3 cl.

*Prereq.: 200 or equiv.*

Consideration of healthful school living and health services, including health appraisal, counseling, educational adjustments, communicable diseases, and emergency programs. *Cushman.*

**690 School Health Education Workshop U G 4**

(799) Su. 3 week workshop.

*Prereq.: Permission of instructor.**Repeatable to a maximum of 8 cr. hrs.*

A team approach to school health education with emphasis on instruction, health services, environment, methods, materials, resources, evaluation, interrelationships, and others; individual and group study. *Fogle.*

**693 Individual Studies in Health Education U G 1-4**

(701) Su, A, W, Sp.

*Prereq.: 4th yr. or graduate standing and permission of adviser.*

Investigation of selected professional problems.

**994 Problems in School Health Education G 3**

(820) Su, A, W, Sp.

Advanced problems in school health education. Individual or group participation.

**994.01 Curriculum in Health Education**

A.

*Cushman.***994.02 Survey of Research in Health Education**

W.

*Beyrer.***994.03 Evaluation in Health Education**

Su, Sp.

*Cushman.***995 Seminar in School Health Education G 2**

(801) A. 2 cl.

*Beyrer and Cushman.***996 Comparative Study of World Health Problems G 3**

A, W. 3 cl.

*Prereq.: 101 or 200 or 501.*

A study of world health problems, their influences on all people, the variety and magnitude of problems, and the methods being used to solve them.

**999 Research in Health Education G Arr.**

(950) Su, A, W, Sp.

Research for thesis and dissertation purposes only.



## Hebrew

Office: 116 Derby Hall, 154 North Oval Drive

Professor Bulatkin (Chairman); Instructor Mashiah.

### 101 Introduction to Modern Hebrew U 5

A. 5 cl.

Conversation, reading, writing, vocabulary building, phonetics, and grammar.

### 102 Introduction to Modern Hebrew U 5

W. 5 cl.  
Prereq.: 101.

Reading of modified passages from modern Hebrew literature supplemented with additional study of grammar.

### 694 Special Group Studies U G 1-5

in Hebrew  
A, W, Sp.  
Prereq.: Permission of instructor.  
Repeatable to a maximum of 15 cr. hrs.

### 793 Individual Studies in Hebrew U G 1-5

A, W, Sp.  
Prereq.: Permission of instructor.  
Repeatable to a maximum of 15 cr. hrs.

### 794 Special Group Studies U G 1-5

in Hebrew  
A, W, Sp.  
Prereq.: Permission of instructor.  
Repeatable to a maximum of 15 cr. hrs.

## History

Office: 108 University Hall, 216 North Oval Drive

Professors Coles (Chairman), Ankori, Bremner, Chapin, Dillon, Dorpalen, Dulles (Emeritus), Fisher, Grimm, Hill (Emeritus), McDonald, Morley, Pegues, Poirier, Ragatz (Emeritus), Roberts, Roseboom (Emeritus), Simms (Emeritus), Weisenburger, and Woodring (Emeritus); Visiting Professor Chessman; Associate Professors Burnham, Flanders (Mansfield), Larmour, Rule, Wilkie, Young, and Zahniser; Adjunct Associate Professor Fullmer; Assistant Professors Bowers, Chazan, Curran, Green, Hare (Emeritus), Minear, Reinhardt (Lima), Rogel and tenZythoff (Mansfield); Visiting Assistant Professor Wong.

### 101 History of Western Civilization U 5

(1500 to 1815)  
(401) Su, A, W, Sp. 5 cl.  
Either 101 or 102 may be taken independently.  
Not open to students with credit for 121.

Renaissance; Reformation; Spanish culture; Elizabethan England; French classicism, and early modern natural science; national monarchies, absolutism, and mercantilism; the Enlightenment; the French Revolution; Napoleon.

### 102 History of Western Civilization U 5

(1815 to the Present)

(402) Su, A, W, Sp. 5 cl.  
Either 101 or 102 may be taken independently.  
Not open to students with credit for 122 or 123.

Continuation of 101. Restoration; reaction; democracy; economic and political radicalism; Romanticism; nationalism; imperialism; World War I; post-war Europe.

### 103 History of the United States U 5

(1763 to 1877)

(403) Su, A, W, Sp. 5 cl.  
Not open to students with credit for 121 or 122 or 230.

The general political, constitutional, and economic development of the United States from the beginning of the Revolutionary era to the end of the Civil War.

### 104 History of the United States U 5

(1877 to Present)

(404) Su, A, W, Sp. 5 cl.  
Not open to students with credit for 122 or 123 or 230.

A continuation of 103. The two provide a sequence but either may be taken independently as an elective.

### 121 The Western World U 5

in Modern Times

(421) Su, A, W, Sp. 5 cl.  
Not open to students with credit for 101 or 103 or 230.

From the beginning of modern times through the first third of the nineteenth century. A course in the history of modern Europe and the United States. Emphasis is placed on the history of the United States in a world setting. Major themes include the development of representative government and democracy, the rise of capitalism, the role of organized religion, and the impact of scientific development.

### 122 The Western World U 5

in Modern Times

(422) Su, A, W, Sp. 5 cl.  
Not open to students with credit for 102 or 103 or 104 or 230.

Continuation of 121. The nineteenth century.

### 123 The Western World U 5

in Modern Times

(423) Su, A, W, Sp. 5 cl.  
Not open to students with credit for 102, or 104 or 230.

Continuation of 122. The twentieth century.

### 210 Great Figures in Greek U 3

and Roman Antiquity

(511) A. 3 cl.  
A biographical approach to Antiquity through an examination of the lives of eight prominent men; readings in ancient and modern biographies. McDonald.

### 211 Great Figures of Modern Europe U 3

(512) A. 3 cl.

A study of modern European history through an examination of the lives and times of great figures.

- 212 Great Figures in British History U 3**  
 (510) A. 3 cl.  
 British history since 1485 as illustrated in the lives of notable figures.

- 213 The History of the Medieval Church U 3**  
 (517) Sp. 3 cl.  
 The rise of the Christian church and the papacy; the Church Fathers; investiture controversy; heresy and monasticism; mysticism; the crisis of the late medieval church. *Pegues.*

- 215 Contemporary Europe (1914 to the Present) U 5**  
 (590) Su, A, W. 5 cl.  
 World War I; political, social, and economic developments of the interwar period; Communism, Nazism; World War II; Europe between East and West; moves toward unification. *Dorpalen and Larmour.*

- 220 Russian Civilization U 5**  
 (520) W. 5 cl.  
 A survey of Russian civilization from earliest times to 1917; geography, peoples, culture, social, political and religious institutions, and the impact of Westernization. *Curran.*

- 230† American Civilization U 5**  
 (504) Sp. 5 cl.  
*Not open to students with credit for 103 or 104 or 121 or 122 or 123.*  
 A survey emphasizing the origin and development of basic ideals and institutions, continuing problems of American democracy, and the U.S. and world affairs. *Coles.*

- 231 Great Figures in American History U 3**  
 (513) A, W, Sp. 3 cl.  
 Main trends of American development through the medium of biography; historical background, comparison and contrast of leading figures, and analysis of motivation and character. *Bowers and Coles.*

- 232 Recent History of the United States (1898-1928) U 3**  
 (537) A, W, Sp. 3 cl.  
*Not to count toward a major in Hist.*  
 The impact of modern industrialism upon American imperialism, society, government, and foreign policy; *Laissez-faire* and government regulation, the Progressive movement, and the First World War.

- 233 Recent History of the United States (since 1928) U 3**  
 (538) A, W, Sp. 3 cl.  
*Not to count toward a major in Hist.*  
 Continuation of 232, but may be taken separately. Prosperity and depression, the New Deal, the United States in international affairs, the Second World War.

- 240 Latin America in the Twentieth Century U 3**  
 W. 3 cl.  
 The history of Latin America in the twentieth century.

- 251 Jewish Civilization I U 3**  
 A. 3 cl.  
*Either 251, 252, or 253 may be taken independently.*

Jewry and Judaism from remote antiquity to the fourth century A.D. *Chazan.*

- 252 Jewish Civilization II U 3**  
 W. 3 cl.  
*Either 251, 252, or 253 may be taken independently.*

Jewry and Judaism from the fourth century A.D. to the French Revolution. *Chazan.*

- 253 Jewish Civilization III U 3**  
 Sp. 3 cl.  
*Either 251, 252, or 253 may be taken independently.*

Jewry and Judaism from the French Revolution to the present. *Chazan.*

- 301 Major Influences in the History of Western Civilization U 3**  
 (693) W. 2 cl.

Offered by senior members of the staff and designed to acquaint the student with problems in the interpretation of the history of western civilization. *Rule.*

#### GENERAL PREREQUISITES FOR COURSES NUMBERED 600 AND 700

Unless otherwise indicated the prerequisites for 600 and 700 courses are four quarter courses in the social science field, of which at least two must be in history.

- 600†\* The Ancient History of the Near East U G 3**  
 (653) Sp. 3 cl.  
 The ancient history of Egypt, Babylonia, Assyria, and adjacent cultures. Readings in the sources in translation. *McDonald.*

- 601 Greek History U G 5**  
 (655) A. 5 cl.  
 A history of Greece from the early Minoan period to the age of Demosthenes and Philip of Macedon; readings in the Greek historians in translation. *McDonald.*

- 602\* Greek Civilization U G 3**  
 (649) Su. 3 cl.  
 The Hellenistic Age: A study of Greek institutions from Alexander the Great to the Roman conquest; readings in the sources in translation. *McDonald.*

- 603 Roman History U G 5**  
 (656) W. 5 cl.  
 A history of Rome from the early Bronze Age to the fall of the Roman Republic; readings in the Roman historians in translation. *McDonald.*

- 604\* Roman Civilization U G 3**  
 (650) Su. 3 cl.  
 A study of the Early Roman Empire, beginning with the Augustan Age and ending with Marcus Aurelius; readings in the sources in translation. *McDonald.*

- 606 Medieval Civilization U G 5**  
 (619) A. 5 cl.  
 The decline of the Roman Empire; the rise of Christianity; analysis of feudalism and manorialism; the Great Economic Revival, and the origins of Western Society. *Pegues.*



- 609 The Renaissance** U G 3  
(607) W. 3 cl.  
The literary, artistic, and intellectual achievements primarily of Renaissance Italy against the economic, political, and social developments in western Europe. *Grimm.*
- 610 The Reformation** U G 5  
(608) A. Sp. 5 cl.  
The rise and growth of Protestantism and the Catholic reformation of the sixteenth century against the economic, political, and social developments in western Europe. *Grimm.*
- 612 Europe 1660-1789** U G 5  
(617) Sp. 5 cl.  
A study of the rise of the absolute state, the changing diplomatic alignments, and the enlightenment. *Rule.*
- 613 The French Revolution and Napoleon** U G 5  
(624) W. 5 cl.  
The background of the Revolution; the social bases and political schisms of the first three Revolutionary governments, 1789-1795; the program and role of Napoleon. *Rule.*
- 614 Europe 1815-1914** U G 5  
(620) W. 5 cl.  
Nationalism, the democratic movement, economic growth, imperialism, and cultural advance from the Congress of Vienna to World War I.
- 615 France 1815-1914** U G 5  
A. 5 cl.  
France's transformation from a rural, traditional society to a modern, industrial society, and the relation of this transformation to 19th century political and intellectual movements. *Larmour.*
- 616 France in the Twentieth Century** U G 5  
Sp. 5 cl.  
The impact on France of two world wars, the depression and decolonization, with emphasis on the breakdown of the political system and the emergence of a new society from the wreckage of the old. *Larmour.*
- 618 Modern Germany (1815 to the Present)** U G 5  
(629) W. 5 cl.  
Political, social, economic, and cultural developments; the national and liberal movements; unification; Empire; Weimar Republic; Nazi Regime; present-day Germany. *Dorpalen.*
- 620 European Diplomacy, 1871-1939** U G 3  
(630) Sp. 3 cl.  
Imperialism and the Alliance systems leading to World War I; the Paris Peace Conference, and the political and economic diplomacy prior to World War II. *Fisher.*
- 621 The Rise of Modern Physical Science** U G 5  
W. 5 cl.  
*Prereq.: Jr. standing.*  
The physical sciences from the end of the Enlightenment to 1904 and their intellectual and institutional interrelationships with Western society. *Fullmer.*
- 622 Intellectual History of Nineteenth Century Europe** U G 5  
(687) A. 5 cl.  
Ideas and ideologies in their social and economic setting, including *laissez-faire* liberalism, Darwinism and the various schools of socialism. *Poirier.*
- 628 Africa and the Western World in the Nineteenth and Twentieth Centuries** U G 5  
(622) W. 5 cl.  
Economic penetration, the conflict of cultures, political developments, and social advance.
- 629 Asia, the Pacific Basin, and the Western World in the Nineteenth and Twentieth Centuries** U G 5  
(623) W. 5 cl.  
The rise and decline of colonialism and contemporary problems.
- 630 Medieval England** U G 5  
(609) W. 5 cl.  
England from the Roman conquest to 1485; Anglo-Saxon society and institutions; the Norman conquest; law and parliament; social, intellectual and economic growth of the English people. *Pegues.*
- 631 Tudor and Stuart England** U G 5  
Su, Sp. 5 cl.  
The religious, political, economic, imperial, and intellectual development of the English people from 1485 to 1714, with special attention to the constitutional struggles of the seventeenth century. *Roberts.*
- 632 England in the Eighteenth and Nineteenth Centuries** U G 5  
(610) W. 5 cl.  
The course of political, social, and intellectual change, of industrial and commercial growth of Hanoverian, Victorian, and Edwardian England. *Poirier.*
- 633 England in the Twentieth Century** U G 5  
(686) Sp. 5 cl.  
A study of Britain since 1900 with special emphasis on the rise of the Labour party and the development of the social welfare state. *Poirier.*
- 635 History of Russia (to 1801)** U G 3  
(675) A. 3 cl.  
*Not open to students who have 5 cr. hrs. for Hist. 636.*  
A survey from the origins of the Russian state to the end of the eighteenth century. *Curran.*
- 636 History of Russia (1801-1914)** U G 3  
(676) W. 3 cl.  
A survey from the accession of Alexander I to the outbreak of the First World War. *Morley.*
- 637 Soviet Russia** U G 3  
(677) A. Sp. 3 cl.  
Beginning with the background and events of the revolution of 1917, this course analyzes developments in Russian history from World War I to the present. *Morley and Curran.*

**638 Russian Intellectual History U G 5**

(681) Sp. 5 cl.

A survey of the main currents of Russian social, political, economic, and philosophical thought in the nineteenth century; Liberalism, Conservatism, and Socialism. *Curran*.

**639\* Modern Poland U G 3**

(678) A. 3 cl.

While several background lectures deal with the partitions of Poland and the revolutions of the nineteenth century, emphasis is placed on the period since 1918. *Morley*.

**640 China Under the Ch'ing Dynasty, 1644-1912 U G 5**

Sp. 5 cl.

Prereq.: 645.

History of the last dynasty of the imperial period, with emphasis on China's response to the West in the nineteenth century.

**641 The Rise of Islam and the Spread of Muslim Civilization U G 3**

(626) A. 3 cl.

Life and teachings of Muhammad; Umayyad and Abbasid empires; the Crusades, Islamic culture and learning through the ages; the decline under the Mongols; terminal date, 1517. *Fisher*.

**642 The Rise and Fall of the Ottoman Empire U G 3**

(627) W. 3 cl.

A study of the significance of the Middle East with respect to Europe from the thirteenth century to World War I. *Fisher*.

**643 The Middle East since 1914 U G 3**

(628) W, Sp. 3 cl.

National and international problems following the collapse of the Ottoman empire; the Turkish Republic; the state of Israel; Arab unity; and the conflict between East and West. *Fisher*.

**644 History of the Far East to 1800 U G 5**

(694) A. 5 cl.

The development of the civilizations of China, Korea, and Japan from the earliest time to the beginning of large-scale Western influence. *Minear*.

**645 History of the Far East since 1800 U G 5**

(695) W. 5 cl.

The transformation of China, Korea, and Japan in modern times under the impact of the West. *Minear*.

**646 History of Modern China U G 5**

(696) A. 5 cl.

Prereq.: 645.

A study of China's response to the problems generated by contact with the West, emphasizing the rise of nationalism and communism in the twentieth century. Political, social and intellectual history.

**647 History of Traditional Japan U G 5**

W. 5 cl.

Prereq.: 644.

Problems regarding the political, intellectual, and institutional history of Japan prior to the arrival of Perry (1851). *Minear*.

**648 History of Modern Japan U G 5**

(651) Sp. 5 cl.

Prereq.: 645.

Political, social and intellectual history of Japan from the beginning of the Meiji Period (1868) to the present. *Minear*.

**649 The Oral History of Twentieth-Century Latin America U G 5**

Sp. 5 cl.

Prereq.: Speaking and reading knowledge of Spanish or permission of instructor.

Repeatable to a maximum of 15 cr. hrs.

Interdisciplinary research and preparation for field work of the Oral History Center for Latin America are undertaken on themes of (a) biography and (b) personalism, ideology, and nationalism. *Wilkie*.

**650 Spain U G 5**

Sp. 5 cl.

The unification of Spain under Ferdinand and Isabella; the Golden Age; Enlightened Despotism of the 18th century; the Napoleonic Wars; the Generation of 1898; the Republic and the Civil War; the regime of Francisco Franco.

**651 Latin America U G 5**

(645) A. 5 cl.

The Mayan, Aztec, and Inca Empires; the Spanish and Portuguese conquest; and the development of Hispanic civilization in the New World. *Stoan*.

**652 South America Since Independence U G 5**

(646) W. 5 cl.

Nation-building in the South American republics during the nineteenth and twentieth centuries with special emphasis upon Argentina, Uruguay, and Brazil. *Stoan*.

**653 Northern Latin America Since Independence U G 5**

(679) Sp. 5 cl.

Special emphasis upon social and economic outcomes of the main revolutionary movements. *Wilkie*.

**654 Intellectual History of Latin America in the National Era U G 5**

W. 5 cl.

Prereq.: 6 cr. hrs. of 600 level courses in the Latin America area or permission of instructor.

A study of the impact of thought upon the organization of Latin American society in different epochs.

**655 Social and Economic History of Latin America in the National Era U G 5**

A. 5 cl.

Prereq.: 6 cr. hrs. of 600 level courses in the Latin America area or permission of instructor.

A study of patterns in the history of race, class, land, industry, and foreign influence.

**656 The American Colonies U G 5**

(644) A. 5 cl.

The transplanting of European civilization to North America, the resultant international rivalries, and the political, social, and economic life of the English colonies to 1763. *Bowers, Chapin, and Coles*.



**658 The American Revolution and New Nation, 1763-1800 U G 5**

(648) *W. Sp. 5 cl.*

A continuation of 656 but may be taken separately. Primary emphasis is on social, intellectual, and economic factors. *Bowers, Chapin, Coles, and Zahniser.*

**659 Jefferson and Jacksonian Democracy, 1800-1840 U G 5**

*Su. 5 cl.*

A continuation of 658 but may be taken separately. Primary emphasis on ideological, cultural, and political factors. *Bowers, Chapin, Coles, and Flanders.*

**660 The Westward Movement Since 1783 U G 5**

(641) *Su. 5 cl.*

The westward spread of settlement and the influence of the westward movement on American development. *Flanders and Young.*

**661 The Slavery Controversy in the United States U G 3**

(633) *Su. A. 3 cl.*

The social system of the Old South; the various aspects of the controversy; secession and the impact of war. *Dillon and Smith.*

**662 Reconstruction and the New South (1863 to the Present) U G 3**

(634) *Su. W. 3 cl.*

The controversy over construction; the social and economic readjustments in Southern States during and after reconstruction. *Dillon and Smith.*

**664 The Emergence of Modern America, 1865-1898 U G 5**

(668) *Sp. 5 cl.*

An intensive study of the political, social, and cultural transformation of the United States in the late nineteenth century. *Weisenburger.*

**665 United States in the Twentieth Century, 1900-1919 U G 3**

*A. 3 cl.*

*Prereq.: 123 or 104.*

*Open to graduate students by permission of instructor.*

An intensive study of the United States during the Progressive Era and World War I. *Bremner and Burnham.*

**666 United States in the Twentieth Century, 1920-1939 U G 3**

*W. 3 cl.*

*Prereq.: 123 or 104.*

*Open to graduate students by permission of instructor.*

An intensive study of the United States during the Era of Normalcy and the New Deal. *Bremner and Burnham.*

**667 United States in the Twentieth Century, 1940-present U G 3**

*Sp. 3 cl.*

*Prereq.: 123 or 104.*

*Open to graduate students by permission of instructor.*

An intensive study of the United States during World War II and the Cold War Era. *Bremner and Burnham.*

**668 American Military Policy U G 5**

(618) *Sp. 5 cl.*

The development of American military policy, 1763 to the present, in relation to its political, economic, and social implications. *Coles.*

**670 American Foreign Policy to 1914 U G 5**

(635) *A. W. 5 cl.*

Emphasis on these topics: the revolution, neutral rights, the Monroe Doctrine, continental expansion, the Civil War, overseas expansion, Far Eastern policy. *Zahniser and Green.*

**671 American Foreign Policy Since 1914 U G 5**

(636) *W. Sp. 5 cl.*

Emphasis on these topics: U.S. relations with Europe, with the Far East and with Latin America since 1914. *Zahniser and Green.*

**672 Social and Economic History of the United States, 1815-1865 U G 5**

(642) *A. 5 cl.*

The development of economic institutions and their relation to economic growth and to movements for social and political reform.

**673 Social and Economic History of the United States, 1865-1914 U G 5**

*W. 5 cl.*

The development of an integrated national economy and society; its extensive and intensive expansion.

**674 Social and Economic History of the United States, 1914-Present U G 5**

*Sp. 5 cl.*

The development of social and economic institutions for a society characterized by high mass consumption; the increasing role of government in the economy.

**675 Constitutional History of the United States U G 5**

(631) *W. 5 cl.*

Problems involved in the constitutional growth and development of the United States from the struggle for independence to the present. *Chapin.*

**676 The Influence of Immigrant Groups Upon United States History U G 5**

(639) *W. 5 cl.*

The share of different immigrant groups in the building of the nation, from the colonial period to the present. *Weisenburger.*

**677 Studies in the History of Philanthropy and Social Welfare U G 3**

*Sp. 3 cl.*

*Prereq.: 104 or 123 or permission of instructor.*

Major influences in American philanthropy and social welfare since the colonial period. *Bremner.*

**678 American Social Thought, 1890-1929 U G 5**(696) *W. 5 cl.**Prereq.: 104 or 123.**Not open to students with credit for (692).*

Philosophy and institutions of social reform in the United States in the late nineteenth and early twentieth century. *Bremner.*

**679† American Social Thought Since 1929 U G 5**(697) *Sp. 5 cl.**Prereq.: 104 or 123.*

A historical examination of trends in American social thought and criticism since the Great Depression. *Bremner.*

**680† History of American Science Before Darwin U G 3**(673) *Su. 3 cl.*

Beginnings and flowering of scientific inquiry in colonial America; impact of the Enlightenment; coming of technology and expansion of science in early nineteenth-century America. *Burnham.*

**681 History of American Science Since Darwin U G 3**(674) *W. 3 cl.*

The Darwinian Period in America; positivism and pragmatism; the rise of twentieth-century science; American scientific leadership; role of the scientist in twentieth-century America. *Burnham.*

**682 Political Parties in the United States U G 5**(643) *Sp. 5 cl.*

The origin and growth of national parties and the history of party struggles with emphasis upon presidential elections.

**683 The History of Ohio U G 3**(689) *A. 3 cl.*

A general survey of state history—social, economic, religious, and political—from the Indian period to the present time. *Weisenburger.*

**693 Individual Studies in History U G 1-3**(700) *Su, A, W, Sp.**Prereq.: Permission of instructor.*

Individual study in some field of historical development; designed to allow the student to work upon a problem in which he is particularly interested.

**694 Special Group Studies in History U G 1-5***A, W, Sp.**Repeatable to a maximum of 15 cr. hrs.*

The investigation of particular problems in various fields of history.

**715†\* The Second Commonwealth U G 3***A. 3 cl.*

The restoration of Jewish statehood following the first Babylonian Exile and the history of Palestinian Jewry and of the Jewish Diaspora down to the second century A.D.

**716†\* The Jewish Community Under Medieval Christianity U G 3***A. 3 cl.*

The legal, social, economic, and cultural position of the Jews in the Late Roman Empire and in Western Europe from the 4th century A.D. to 1500.

**717†\* Jewry and Judaism in the Orbit of Islam U G 3***A. 3 cl.*

History of the Jews in the Near East and North Africa from the Arab conquests to about 1500.

**718\* Jews in the Western World in Modern Times U G 3***A. 3 cl.*

Changing patterns of Jewish life since the Jews' struggle for Emancipation; migration movements and the shift of Jewish centers in Europe and the New World. *Chazan.*

**719\* The Jewish Settlement in Palestine From the Ottoman Conquest to Modern Times U G 3***W. 3 cl.*

The flourishing Palestinian Jewish Center in the 16th century; Jewish immigration to Palestine; rise of modern Zionism; the British Mandate, and the State of Israel. *Chazan.*

**720†\* History of Ancient Israel U G 3***A. 3 cl.*

The rise of the Jewish nation and religion in the Ancient Near East; settlement in Canaan; the Israelite and Judean monarchies until their conquest by Assyria and Babylonia.

**721†\* The World of the Talmud U G 3***A. 3 cl.*

The development of Jewish law and institutions in Palestine and Babylonia after the destruction of the Second Commonwealth; Rabbinic Judaism and diasporic Jewish self-government.

**722†\* Jews in the Mediterranean World U G 3***W. 3 cl.*

East Mediterranean Jewry under the Byzantine Empire, its successor states, and under the Ottoman Turks; the Jews in Italy; rise and fall of Spanish Jewry.

**723†\* Jews in Eastern Europe U G 3***W. 3 cl.*

East European Jewish communities: their origin and function within medieval Polish society; self-governing institutions of Polish and Lithuanian Jewry; the "Jewish Question" in Tzarist Russia.

**724†\* Messianic and Sectarian Movements in Jewry U G 3***Sp. 3 cl.*

The history, doctrines, and polemics of the secessionist groups in medieval Jewry from the 7th to the 18th centuries.

**730† Studies in European History: 1815-1914 U G 3**(789) *Sp. 1 cl.*

*Open only to graduate students and by permission to seniors majoring in Hist.*



Political and social impact of Industrial Revolution; authoritarianism vs. liberalism; Church vs. State; nationalism; imperialism. Emphasis on methods of historical research and documentary analysis. *Dorpalen.*

**731 Studies in European History: 1914 to the Present U G 3**

(790) Su, A. 1 cl.

*Prereq.: Graduate standing, or 4th yr. majors in Hist. with permission of instructor.*

Political, social, and economic developments: World Wars I and II; Communism, Nazism; present-day Europe. Emphasis on methods of historical research and documentary analysis. *Dorpalen.*

**735 The Habsburg Empire, 1740-1918 U G 5**

Sp. 5 cl.

A century and a half of Habsburg history with emphasis on Austria's responses to Enlightenment ideas, the French Revolution, social change, industrialization, and emerging nationalisms. *Rogel.*

**736 The Balkans from the Ottoman Conquest to World War I U G 5**

W. 5 cl.

A historical survey of the Balkan peoples; political, social, economic, and cultural development; emphasis on the emergence and expression of Balkan nationalisms. *Rogel.*

**737 East Central Europe Since 1919 U G 5**

A. 5 cl.

A survey of East Central Europe from the end of World War I to the present. *Rogel.*

**740† Studies in Russian History (Catherine the Great Through the Crimean War, 1762-1855) U G 3**

(771A) W. 2 cl.

*Prereq.: 6 cr. hrs. of Russian history or permission of instructor.*

An intensive study of problems in selected periods of Russian history. *Morley.*

**741 Studies in Russian History (Alexander II through the Bolshevik Revolution, 1855-1917) U G 3**

(771B) Sp. 2 cl.

*Prereq.: 6 cr. hrs. of Russian history or permission of instructor.*

An intensive study of problems in selected periods of Russian history. *Morley.*

**783 Honors Course U 3-5**

(705) A, W, Sp.

*Prereq.: 4th yr. standing and 40 cr. hrs. in Hist. courses with a grade of "A" in at least half of the Hist. courses and an average of "B" in the remainder; permission of instructor under whose supervision the work is to be completed and the Honors Committee of the College. At least 2 qtrs. are required of candidates for the degree Bachelor of Arts with Distinction in History. Failure to receive a grade of "B" in this course is a disqualification for special honors.*

*Repeatable to a maximum of 15 cr. hrs.*

Informal conferences to allow full scope to the initiative of the student; a special topic is assigned and results are tested by papers and special examinations.

**800 Seminar in European History G 3**

(809) A. 1 cl.

*Prereq. or concur.: 812.*

Research topic to be announced. *Grimm.*

**801 Seminar in European History G 3**

(810) W. 1 cl.

*Prereq. or concur.: 812.*

Research topic to be announced. *Dorpalen.*

**802 Seminar in European History G 3**

(811) Su, A, W, Sp. 1 cl.

*Prereq. or concur.: 812.*

*Curran, Grimm, Morley, and Poirier.*

**803 Seminar in European History G 3**

(815) A, Sp. 1 cl.

*Prereq.: 812.*

*Larmour and Rule.*

**804 Seminar in European History G 3**

(816) Sp. 1 cl.

*Prereq.: 812.*

Research topic to be announced.

**805 Seminar in European History G 3**

(817) Su. 1 cl.

*Prereq. or concur.: 812.*

*Roberts.*

**811 Introduction to Historical Research in American History G 3**

(812A) A. 3 cl.

*Prereq.: 1st qtr. Master's degree candidates in American History.*

A practice course dealing with the problems involved in the preparation of the Master's thesis. *Weisenburger.*

**812 Introduction to Historical Research in European History G 3**

(812B) A. 3 cl.

*Prereq.: 1st qtr. Master's degree candidates in European History.*

A practice course dealing with the problems involved in the preparation of the Master's thesis. *Fisher.*

**813 Great European Historians G 3**

A, Sp. 1 cl.

A study of the leading historical writers and schools of Europe, with selected readings from representative writers. *Roberts.*

**814 Great American Historians G 3**

W. 1 cl.

A study of the leading American writers and schools of history. *Coles.*

**845† Seminar in East Asian History G 3**

W. 1 cl.

*Prereq.: 646 and ability to use the Chinese language in research.*

Techniques and tools of research in modern Chinese History; introductory readings in Ch'ing documents.

**850 Seminar in History G 3**

(825) A, W, Sp. 1 cl.

*Prereq.: Permission of graduate chairman and department chairman.*

Research topic to be announced.

- 862† Charters of European Jewry: From Carolingian Times to the 18th Century G 3  
A. 1 cl.

Ankori.

- 863† The Jewish Community G 3  
Sp. 1 cl.

Studies in the institutional history of Jewry through the ages. Ankori.

- 864 Jewish Historiography G 3  
W. 1 cl.

Chazan.

- 865 Two Quarter Seminar in American History G 3

(819) W. 1 cl.

Prereq.: 811 and permission of instructor.

865 must be followed by 866.

Bremner.

- 866 Two Quarter Seminar in American History G 3

(820) Sp. 1 cl.

Prereq.: 811, 865, and permission of instructor.

Bremner.

- 867 Seminar in American History G 3

(821) Su, A, W, Sp. 1 cl.

Prereq. or concur.: 811.

Research topic to be announced. Coles, Dillon, Smith, and Weisenburger.

- 868 Seminar in American History G 3

(822) Su, A, W, Sp. 1 cl.

Prereq. or concur.: 811.

Research topic to be announced. Bowers, Chapin, Burnham, Green, and Zahniser.

- 869 Seminar in American History G 3

(823) A, W. 1 cl.

Prereq. or concur.: 811.

Research topic to be announced.

- 870 Seminar in American History G 3

(824) A. 1 cl.

Prereq. or concur.: 811.

Research topic to be announced.

- 871 Recent History of the United States (1898-1928) G 5

(737) A. 5 cl.

The impact of modern industrialism upon American imperialism, society, government, and foreign policy. *Laissez-faire* and government regulations, the Progressive movement, and the First World War. Bremner and Burnham.

- 872 Recent History of the United States (since 1928) G 5

(738) W. 5 cl.

Continuation of 871, but may be taken separately. Prosperity and depression, the New Deal, the United States in international affairs, and the Second World War. Bremner and Burnham.

- 880 History of Psychiatric Concepts G 1  
Sp. 1 cl.

Prereq.: Permission of instructor.

Psychiatric concepts and practices in their intellectual and social milieu from the Enlightenment to the twentieth century. Burnham.

- 899 Interdepartmental Seminar G 1-5

A, W, Sp.

(See under Interdepartmental Seminars.)

- 999 Research in History G Arr.

(950) A, W, Sp.

Research for thesis or dissertation purposes only.

## Home Economics

Office: 229 Campbell Hall, 1787 Neil Avenue

Professors Scott (Director), Dalrymple, Deacon, Dirks, Gilmore, Heye, Prudent, and Wilson; Associate Professors Alexander, Beard, Green, Lapitsky, Lloyd, Maloch, Meacham, Millican, Mountney, Tapscott, and Vivian; Assistant Professors Andrian, Blakemore, Bloom, Cook, Dickerscheid, Everhart, Herr, Hubbard, Hunt, Lehr, A. Smith, and Taylor; Instructors L. Bailey, S. Bailey, Butler, Cremer, Marshall, Olson, Philpot, Ridder, Smathers, and S. Smith.

The courses in Home Economics may be grouped as follows:

Family and Child Development—360, 362, 363, 462, 463, 589.10, 593.10, 594.10, 598, 662, 663, 667, 690.10, 794.10, 860, 861, 862, 993.10, 999

Food and Nutrition—110, 310, 313, 314, 413, 589.01, 589.02, 593.01, 593.02, 594.01, 594.02, 596, 610, 612, 615, 616, 690.01, 690.02, 711, 794.01, 794.02, 802, 810, 813, 816, 993.01, 993.02, 999.

Home Economics Education—441, 442, 443, 589.09, 589.11, 593.09, 594.09, 690.09, 794.09, 840, 841, 842, 843, 844, 845, 846, 993.09, 999.

Management, Housing, and Equipment—228, 320, 322, 325, 326, 327, 328, 423, 427, 589.05, 589.06, 589.07, 593.05, 593.06, 593.07, 594.05, 594.06, 594.07, 622, 623, 624, 628, 690.05, 690.06, 690.07, 794.05, 794.06, 794.07, 822, 825, 826, 827, 993.05, 993.06, 993.07, 999

Institution Management—230, 430, 431, 435, 538, 589.08, 593.08, 594.08, 630, 632, 633, 634, 635, 690.08, 794.08, 830, 832, 993.08, 999.

Textiles and Clothing—270, 274, 371, 374, 470, 471, 574, 589.03, 589.04, 593.03, 593.04, 594.03, 594.04, 595, 671, 672, 674, 690.03, 690.04, 794.03, 794.04, 870, 871, 872, 993.03, 993.04, 999

General Courses—090, 290, 590

- 090 Home Economics Survey U 1

(400) A. 2 cl.

Prereq.: Required of entering freshman and off-campus transfers with less than 45 cr. hrs.

Orientation to college life, study methods, time budgeting, scheduling, and student services.

- 110 Elements of Nutrition U 5

(440) W, Sp. 5 cl.

Not open to students majoring in Home Ec.

Nutritional needs throughout the life cycle. Herr.



### GENERAL PREREQUISITES FOR COURSES NUMBERED 200

Unless otherwise indicated, the prerequisites for 200 courses are 45 cr. hrs. in collegiate courses, exclusive of ROTC and Phys. Ed.; or specified course(s) numbered 100-199.

#### 228 Home Furnishings: Furniture U 3

(513) A. 2 2-hr. cl., 1 2-hr. lab.

Economic factors and trends in materials, construction and finishes; some experience in reconditioning and other techniques. *Everhart.*

#### 230 Introduction to Institution Management U 2

(570) W. 1 2-hr. cl.

Orientation to the fields of food service management and executive housekeeping.

#### 270 Costume Design U 3

(530) A, W, Sp. 2 cl., 2 2-hr. lab.

Prereq.: Fine Arts 290 or equiv.

A critical study of aesthetic principles in relation to costumes.

#### 274 Clothing: Construction Techniques and Needlecrafts U 5

(507) W. 2 cl., 2 3-hr. labs. 2-hr. arr.

(514) Prereq.: Major standing in Oc. Ther.

Not open to majors in Home Ec.

Experience in activities of needlecraft and clothing construction which may have therapeutic value.

#### 290 Home Economics as a Profession U 2

(599) W. 2 1½-hr. cl.

The nature and status of home economics as a field of study and as a profession. *Scott.*

### GENERAL PREREQUISITES FOR COURSES NUMBERED 300 AND 400

Unless otherwise indicated, the prerequisites for 300 and 400 courses are 90 cr. hrs. in collegiate courses, exclusive of ROTC and Phys. Ed.; or specified course(s) numbered 100-399.

#### 310 Fundamentals of Nutrition U 5

(548) A, W, Sp. 5 cl.

Prereq.: Chem. 101 and 102 or equiv.

Not open to students with credit for 110.

Basic information in the science of nutrition as applied to man. *Herr.*

#### 313 Food in Different Cultures U 3

(555) A. 3 cl.

Prereq.: 310 or equiv. recommended; 10 cr. hrs. of social science.

Food practices of selected peoples of the world with consideration of the existing social, cultural, and economic conditions.

#### 314 Food U 5

(549) A, W, Sp. 2 cl., 3 2-hr. lab.

Prereq.: 10 cr. hrs. Chem.

Application of chemical and physical principles to food preparation and use. *Green.*

#### 320 Housing U 3

(510) A, W, Sp. 3 cl.

Prereq.: 360 or 10 cr. hrs. social science.

Housing as it affects family living and is in turn affected by family needs, social and economic trends and the physical environment. *Everhart.*

#### 322 Household Equipment: Introduction U 5

(506) Su, W, Sp. 4 cl., 1 2-hr. lab.

Prereq.: 15 cr. hrs. of natural science.

Principles involved in the selection, construction, operation, and care of household equipment and their relation to the well-being of the family. *Beard.*

#### 325† Elements of Homemaking U 3

(518) A. 3 cl.

Prereq.: 3rd yr. standing.

Not open to majors in Home Ec.

Principles of home management and use of family resources in relation to family well-being.

#### 326 Home Management: The Family and the Market U 3

(559) A, W. 3 cl.

Prereq.: 3rd yr. standing and Econ. 201 or equiv.

The market from the family point of view and its relation to home management practices.

#### 327 Home Management U 5

(560) Su, A, W, Sp. 5 cl.

Prereq.: 3rd yr. standing and Econ. 201 or equiv.

Management process of utilizing specific resources for family's well-being. *Lloyd.*

#### 328 Home Furnishings: Principles U 5

(512) A, W, Sp. 3 cl., 2 2-hr. lab.

Prereq.: Fine Arts 251 or 290.

Application of art principles to furnishing a home with consideration of aesthetic, economic, and social factors affecting choice. *Blakemore and Everhart.*

#### 360 Family Development U 5

(562) A, W, Sp. 5 cl.

Prereq.: 10 cr. hrs. of social science.

The dynamics of family interaction at each stage of the life cycle; emphasis on developmental tasks, socioeconomic and cultural influences and other family differences. *Taylor and Lehr.*

#### 362 Introduction to Child Development U 4

(561) A, W, Sp. 3 cl., 2 morning hrs. arr. for nursery school observation.

Prereq.: Psychol. 100 or equiv. recommended.

Study of the nature, nurture and development of children with emphasis on the preschool years. *Cook and Griffing.*

#### 363 Child Development U 5

(563) Su, A, W, Sp. 5 cl.

Not open to students with credit for 362.

Developmental patterns of children with emphasis on physical, social, and emotional maturation, especially during the formative years; environmental influences and appropriate guidance. *Heye.*

#### 371 Textiles U 5

(505) Su, A, W, Sp. 4 cl., 1 2-hr. lab.

Prereq.: 10 cr. hrs. Chem.

Study of the physical and chemical properties of textiles and their components as they relate to care, performance and consumer satisfaction. *Tapscott.*

- 374 Clothing: Design Analysis** U 5  
(531) A, W, Sp. 2 cl., 3 2-hr. lab.  
Prereq.: 270, 371 and skill in the basic construction processes.

Adaption of standard patterns to individual proportions, flat pattern designing, and application of principles of design and construction in making garments. Marshall.

- 413 Foods: Meal Management** U 4  
(550) A, W, Sp. 2 cl., 3 3-hr. lab.  
Prereq.: 310 and 314.

Nutritional, aesthetic, and social aspects of planning, purchasing, preparing, and serving food to family groups at different income levels.

- 423† Household Equipment** U 3  
(619) W. 2 cl., 1 2-hr. lab.  
Prereq.: 322, 328 or concur.

Application to home situations of the recent developments in lighting with emphasis on selection, care, and use of home lighting equipment. Everhart.

- 427 Home Management** U 4  
(627) Su, A, W, Sp. 5 cl., lab. hrs. arr.  
Prereq.: 327 and senior standing in Home Ec.  
Report to Room 166 E, Campbell Hall, to make Application and to check for eligibility at least two qtrs. in advance.

Application and integration of management principles to operation of a household. Lloyd.

- 430† Menu Planning for Food Service Establishments** U 3  
(571) W. 3 cl.  
Prereq.: 230 and 413.

Principles and practices of menu planning for school, industrial, and commercial food units; menus planned for each type of institution.

- 431 Quantity Food Production and Service** U 5  
(631) A, Sp. 1 2-hr. cl., 8 hrs. lab.  
Prereq.: 230 and 413.

Individual experience in application of food preparation principles to quantity production; use and care of large equipment; standardized formulae and costs; service to the public. Cremer.

- 435† Principles of Teaching Applied to Institution Management** U 4  
(545) Sp. 1 1-hr. cl., 1 2-hr. cl., field experience.  
Prereq.: 431, Psychol. 100, and permission of instructor.

Principles of education for students whose professional work will require knowledge of techniques for teaching others in non-school situations.

- 441 Principles and Methods of Teaching Applied to Home Economics** U 5  
(541) A, W, Sp. 3 cl., 1 day arr.  
Prereq.: 40 cr. hrs. in Home Ec.

Consideration of curriculum, methods of teaching, management, and other problems of the home economics teacher.

- 442 Supervised Home Economics Teaching** U 15

- (542) A, W, Sp. Full time for one qtr. for 15 cr. hrs.  
Prereq.: 441 plus 55 cr. hrs. in Home Ec.; 2.25 cumulative pt.-hr. ratio two qtrs. immediately preceding.

For vocational certification, students must do their teaching in a vocational center.

Registration with the Teacher Placement Service of the College of Education.

Not open to students with credit for 443.

Guided participation in the responsibilities and activities of the Home Economics teacher in the regular day school and extended school program.

- 443 School-Community Problems of the Home Economics Teachers** U 3

- (543) Su. 3 cl. arr. hrs. for observation and participation.

Prereq.: 441, 442, and permission of instructor.

For vocational certification only.

Not open to students with credit for 442.

Responsibilities and activities of the home economics teacher in the extended school program with emphasis on adult education, home experience, related home economics teacher activities. Dirks.

- 462 Nursery School Activities** U 3  
(664) Su, A, W, Sp. 3 cl.

Prereq.: 362 or 363; 463 concur.

Application of principles of development to program planning; modification of activities for age level, ability, experience, group and individual needs. Cook and Dickerscheid.

- 463 Nursery School Practicum** U 2  
(665) A, W, Sp. 1 conf. hr., 2 2-hr. lab.  
Prereq.: 362 and 462.

Repeatable to a maximum of 6 cr. hrs.

Participation in the nursery school as a student teacher applying theory covered in 462. Cook, Dickerscheid, and Philpot.

- 470 Clothing: Fashion and the Ready-to-Wear Market** U 5  
(508) Sp. 5 cl.

Prereq.: 3rd yr. standing.

Fashion, the ready-to-wear market and current developments in the field of textiles and clothing and their relation to satisfying consumer needs. Millican.

- 471 Advanced Textiles** U 5  
(673) W, Sp. 4 cl., 1 3-hr. lab.  
Prereq.: 371.

Not open to students with credit for 571.

Advanced study of chemical and physical textile properties; new developments; standards and testing procedures used in evaluation of textiles.

#### GENERAL PREREQUISITES FOR COURSES NUMBERED 500

Unless otherwise indicated, the prerequisites for 500 courses are 15 cr. hrs. in courses in the same discipline numbered 200 or higher, or 10 cr. hrs. in courses numbered 200 or higher in the same discipline, plus 10 cr. hrs. in courses numbered 200 or higher in specified allied disciplines; or baccalaureate degree.



- 538† Executive Housekeeping: Furnishings, Equipment, and Maintenance** U 5  
W. 5 cl.

*Prereq.: 230, 322, 328, and Fine Arts 111.*

Principles and standards for planning house departments; selection and arrangement of furnishings and equipment; maintenance and service for various types of institutions.

- 574 Clothing** U 5  
(601) W. 2 cl., 2 3-hr. lab.  
*Prereq.: 374.*

Evaluation and application of design and fashion principles in relation to tailored garments; quality-price relationship; optimum utilization of materials and resources.

- 589 Field Work in Home Economics** U 3, 5 or 15

(585) A, W, Sp.

*Prereq.: Senior standing in Home Ec.; 2.25 cumulative pt. hr., and permission of instructor. Registration 2 qtrs. before scheduling.*

*Limited to 5 cr. hrs., except in qtrs. and areas indicated below.*

- |                                     |        |
|-------------------------------------|--------|
| 589.01 Foods                        | 3 or 5 |
| 589.02 Nutrition                    | 3 or 5 |
| 589.03 Textiles                     | 5      |
| 589.04 Clothing A.                  | 15     |
| 589.05 Home Furnishings and Housing | 3 or 5 |
| 589.06 Household Equipment          | 5      |
| 589.07 Home Management              | 3 or 5 |
| 589.08 Institution Management       | 3 or 5 |
| 589.09 Home Economics Education     | 3 or 5 |
| 589.10 Family and Child Development | 3 or 5 |
| 589.11 Home Economics Extension     | 15     |

- 590 Home Economics Colloquia** U 3  
W. 3 cl.

*Prereq.: Eligibility for Honors Program in Home Ec.*

*Repeatable to a maximum of 9 cr. hrs.*

Subjects will be oriented in different quarters to natural science, social science, and general home economics topics.

- 593 Individual Studies** U 3 or 5  
A, W, Sp. 1 or more conf.

*Prereq.: Minimum of 6 cr. hrs. in subject matter of problem with cumulative pt. hr. of 2.7 in Home Ec. subjects; permission of instructor.*

*Repeatable to a maximum of 10 cr. hrs.*

- |   |  |
|---|--|
| 593.01 Food                                 |  |
| 593.02 Nutrition                            |  |
| 593.03 Textiles                             |  |
| 593.04 Clothing                             |  |
| 593.05 Home Furnishings and Housing         |  |
| 593.06 Household Equipment                  |  |
| 593.07 Home Management and Family Economics |  |
| 593.08 Institution Management               |  |
| 593.09 Home Economics Education             |  |
| 593.10 Family and Child Development         |  |

- 594 Special Group Studies** U 3 or 5  
A, W, Sp. 3 cl.

*Repeatable to a maximum of 10 cr. hrs.*

- |   |  |
|---|--|
| 594.01 Food                                 |  |
| 594.02 Nutrition                            |  |
| 594.03 Textiles                             |  |
| 594.04 Clothing                             |  |
| 594.05 Home Furnishings and Housing         |  |
| 594.06 Household Equipment                  |  |
| 594.07 Home Management and Family Economics |  |
| 594.08 Institution Management               |  |
| 594.09 Home Economics Education             |  |
| 594.10 Family and Child Development         |  |

- 595† Textiles and Clothing Seminar** U 2  
(680) W, Sp. 2 cl.

*Prereq.: 4th yr. and major standing in textiles and clothing.*

Special reports and readings in textiles and clothing which contribute to professional effectiveness and promote integration of information in the two fields.

- 596 Food and Nutrition Seminar** U 2  
(640) Sp. 2 cl.

*Prereq.: 4th yr. standing.*

Reports based on current research, recent summaries and articles which give perspective in food and nutrition.

- 598 Seminar in Child Development** U 2  
(666) W. 1 cl.

*Prereq.: 360, 362, and 589.10.*

Review, interpretation, and evaluation of current literature and research in defined areas, with emphasis on recommended professional standards in group care of children.

#### GENERAL PREREQUISITES FOR COURSES NUMBERED 600

Unless otherwise indicated, the prerequisites for 600 courses are 15 cr. hrs. in courses in the same discipline numbered 300 or higher, or 10 cr. hrs. in courses numbered 300 or higher in the same discipline, plus 10 cr. hrs. in courses numbered 300 or higher in specified allied disciplines.

- 610 Nutrition** U G 5  
W. 5 cl.

*Prereq.: 310, Physiol. 311 and Biochem. 511 or 531.*

Modern concepts of normal nutrition. *Green.*

- 612 Nutrition: Diet Therapy** U G 3  
Sp. 3 cl., other hrs. arr.

*Prereq.: 610 or equiv. or permission of instructor.*

Modern concepts of clinical nutrition and abnormalities treated by modification of the diet. *Prudent.*

- 615 Experimental Work in Food Preparation** U G 5

A, Sp. 2 cl., 3 3-hr. lab.

*Prereq.: 314 and Chem. 231 or Biochem. 511 or 531.*

Application of experimental methods to problems involved in preparation of foods. *Prudent.*

- 616 Nutrition of Infants and Children** U G 3  
*Su. 3 cl.*  
*Prereq.: 610.*

Needs of children for good nutrition from the embryonic stage through adolescence. *Prudent.*

- 622 Household Equipment: Performance Testing** U G 5  
*A. 2 cl., 3 2-hr. lab.*  
*Prereq.: 314, 322, 5 cr. hrs. in Microbiol.*

Experimental problems on the performance of the major types of household equipment used in the preparation of food.

- 623 Household Equipment: Performance Testing** U G 5  
*Sp. 2 cl., 3 2-hr. lab.*  
*Prereq.: 322, 371, or equiv., and 4th yr. standing in Home Ec. or permission of instructor.*

Experience in the techniques and reporting of experimental investigations dealing with household equipment used in laundering and other cleaning processes. *Bloom.*

- 624 Household Equipment: The Home Economist in Business** U G 5  
*(580) W. 2 cl., 3 2-hr. lab.*  
*Prereq.: 622, 5 cr. hrs. in Speech.*  
*Not open to students with credit for 422.*

Evaluation and development of the individual's qualifications to meet professional requirements of a home economist in businesses related to household equipment.

- 628 Selection of Furnishings for the Home** U G 3  
*Sp. 2 cl., 1 2-hr. lab. Field trips arr.*  
*Prereq.: 327, 328 and 371.*

Consumers' problems in the selection of home furnishings. *Blakemore.*

- 630 Selection of Food and Equipment for Institutions** U G 5  
*W. 5 cl.*  
*Prereq.: 431 or concur. and Econ. 201.*

Principles and standards for selection of food, equipment, and furnishings in institution food service, arrangement and layout. *Hubbard.*

- 632 Institution Organization and Management** U G 5  
*Sp. 3 cl., 6 hrs. lab. arr.*  
*Prereq.: 431, 630 and Bus. Org. 500.*

Principles of business organization and management and principles of learning applied to the management of food service operations; supervised experience in meal management. *Cremer and Hubbard.*

- 633† School Lunchroom Management** U G 3  
*Su. 3 cl., 1 hr. arr.*  
*Prereq.: 431 and permission of instructor.*

A general course on management problems in a school lunch program. *Cremer.*

- 634† Sanitation for Food Serving Establishments** U G 3  
*Sp. 1 1-hr., 1 2-hr. cl.*  
*Prereq.: Microbiol. 607 or equiv.*

Application of principles involved in sanitary food handling; practical problems concerned with protection of health and with prevention of food spoilage and contamination. *Cremer.*

- 635† Food Cost Analysis for Institutions** U G 3  
*(731) A. 2 2-hr. cl.*  
*Prereq.: 431 and Bus. Org. 500.*

Factors and procedures involved in controlling food and house department costs; evaluation of data from records and reports.

- 662 Child Development** U G 3  
*W. 3 cl., 2 1-hr. observation periods.*  
*Prereq.: 362, Psychol. 550 and Soc. 434.*

Growth and development of children from six through adolescence with emphasis on maturation patterns and individual differences. *Hendrickson.*

- 663 Infant Guidance and Care** U G 3  
*A. 2 cl., 1 2-hr. lab. arr.*  
*Prereq.: 362, Psychol. 550 and Soc. 434.*

Pattern of development during infancy and the second year of life, and responsibilities of adults for providing a home environment favoring optimum development. *Hendrickson.*

- 667 Administration of Day Care Centers** U G 3  
*(762) Su, A. 3 cl.*  
*Prereq.: 462, 463 or equiv.*

Program planning to meet developmental level and needs of young children; minimum and recommended standards. *Heye.*

- 671† Textiles: Technology** U G 3  
*W. 1 cl., 2 2-hr. lab.*  
*Prereq.: 471.*

Experience in planning and conducting textile tests and in evaluating resulting data; development, present status, and importance of textile testing. *Lapitsky.*

- 672 History of Costume and Textiles** U G 5  
*Su, W. 5 cl.*  
*Prereq.: 471.*

A chronological study of costume and textiles from ancient civilization to modern times, with consideration of cultural forces that affected the development. *Millican.*

- 674 Clothing: Advanced Design Analysis** U G 5  
*(604) Su, A, Sp. 2 cl., 3 2-hr. lab.*  
*Prereq.: 374 or equiv.*

Creative interpretation of dress design terminating in finished garments developed through the media of flat pattern and draping. *Millican.*



**690 Home Economics Workshop U G 4**  
(799) *Su. Full time for 3 weeks.*

*Prereq.: Graduate standing in Home Ec. or a closely related field and permission of instructor. Repeatable to a maximum of 12 cr. hrs.*

Workshops in the following phases:

- 690.01 Foods
- 690.02 Nutrition
- 690.03 Textiles
- 690.04 Clothing
- 690.05 Home Furnishings and Housing
- 690.06 Household Equipment
- 690.07 Home Management and Family Economics
- 690.08 Institution Management
- 690.09 Home Economics Education
- 690.10 Family and Child Development

**GENERAL PREREQUISITES FOR COURSES  
NUMBERED 700**

Unless otherwise indicated, the prerequisites for 700 courses are 15 cr. hrs. in courses in the same discipline numbered 400 or higher, plus additional specified course(s) numbered 600 or higher.

**711 Nutrition: History U G 3**  
*Su. 3 cl.*

*Prereq.: 610 and permission of instructor.*

Persons, discoveries and methods in the evolution of nutrition as a science and a factor in the control of human welfare.

**794 Special Group Studies U G 3 or 5**  
*Su, A, W, Sp. 3 cl.*

*Prereq.: Permission of instructor.*

*Repeatable to a maximum of 10 cr. hrs.*

- 794.01 Food
- 794.02 Nutrition
- 794.03 Textiles
- 794.04 Clothing
- 794.05 Home Furnishings and Housing
- 794.06 Household Equipment
- 794.07 Home Management and Family Economics
- 794.08 Institution Management
- 794.09 Home Economics Education
- 794.10 Family and Child Development

**GENERAL PREREQUISITES FOR COURSES  
NUMBERED 800 AND 900**

Unless otherwise indicated, the prerequisites for 800 and 900 courses are 30 cr. hrs. in courses in the same discipline, or 20 cr. hrs. in the same discipline, plus 25 cr. hrs. in specified allied disciplines.

**802 Seminar in Foods G 3 or 5  
and Nutrition**

(810) *Su, A, W.*

*Prereq.: 610 or 615 and permission of instructor.*

*Repeatable to a maximum of 15 cr. hrs.*

- a. Research Methods in Food and Nutrition—Su.
- b. Energy Metabolism—Su.

**810† Research Methods in Nutrition G 3**  
(705) *A. 3 cl.*

*Prereq.: 610, Biochem. 511 and Physiol. 312 or equiv.*

Organization, methods, analysis of data and reporting projects in nutrition research. *Prudent.*

**813† Introductory Food Research G 3**  
(715) *Sp. 1 cl., 2 3-hr. lab.*

*Prereq.: 615 and Biochem. 511 or equiv.*

Individual investigations in food preparation, processing in the home and food storage carried out in laboratory, analyzed and reported. *Prudent.*

**816† Recent Developments in Food G 3  
and Nutrition Research**

(735) *Su. 3 cl.*

*Prereq.: Biochem. 511 or 531 or equiv.*

Brief survey of recent research. *Prudent.*

**822 Seminar in Management, G 3 or 5  
Housing and Equipment**

(820) *Sp. 3 cl.*

(821) *Prereq.: 30 cr. hrs. in Home Ec., including 622 or 623 or 825 or 826 depending on emphasis of topic, and permission of instructor.*

*Repeatable to a maximum of 15 cr. hrs.*

- a. Home Furnishings and Housing—A.
- b. Home Management and Family Economics—W.
- c. Household Equipment—Sp.

**825 Home Management: Activity G 3  
Analysis**

(720) *W. 2 cl.*

*Prereq.: Graduate standing in Home Ec., 10 cr. hrs. in home management or household equipment, and permission of instructor.*

Advanced study in application of work principles to design of appliances, work space areas, and methods of work in the home. *Maloch.*

**826 Family Economic Resources G 3  
and Functions**

(721) *Su, Sp. 3 cl.*

*Prereq.: Econ. 655 or equiv. and permission of instructor.*

Principles, major problems and trends in the economics of the family. *Deacon.*

**827 Home Management: G 3  
Development and Theory**

(719) *A. 3 cl.*

*Prereq.: 327.*

Historical development and present trends in home management with emphasis on theory and practices. *Deacon and Maloch.*

**830 Trends in Food Service G 3 or 5  
Management**

*W. 3 cl.*

*Prereq.: 20 cr. hrs. in Quantity Food Production, Organization and Management, experience in Food Service Management or Administrative Dietetics.*

Interpretation of principles and current research in relation to management of food service organizations at the policy-making level. *Hubbard.*

**832 Seminar in Institution G 3 or 5  
Management**

(831) *Su. 1-2 cl.*

*Prereq.: Graduate standing in Home Ec. and permission of instructor.*

*Repeatable to a maximum of 15 cr. hrs.*

(Topics listed in 262B Campbell Hall.)

- 840 Research Methods in Home Economics** G 3  
(750) *Su, A. 3 cl.*  
*Prereq.: Master's degree students in Home Ec.*  
Nature of research in various areas of the field; criteria for setting up a research problem; techniques for collecting and analyzing data.
- 841 Home Economics in American Education** G 3  
(740) *A. 3 cl.*  
*Prereq.: 441 or equiv. and permission of instructor.*  
An overview of home economics at the elementary, secondary, higher education and adult levels; general trends in enrollment, curriculum and guidance, supervision, administration and research.
- 842 Home Economics in Higher Education** G 3  
(840) *W. 3 cl.*  
*Prereq.: 841 or equiv.*  
Present status and function of home economics at the college level; problems in curriculum development; criteria for effective teaching, guidance, and testing procedures.
- 843 Seminar in Home Economics Education** G 3 or 5  
(841) *W. 1-2 cl.*  
*Prereq.: Graduate standing in Home Ec. and permission of instructor.*  
*Repeatable to a maximum of 15 cr. hrs.*  
a. Research in Home Economics Education—*Su.*  
b. Administration in Home Economics—*Sp.\**
- 844 Evaluation in Home Economics** G 5  
(742) *Sp. 3 cl.*  
*Prereq.: 841.*  
Procedure for appraising student progress in the attainment of objectives; construction of evaluation instruments, analysis, and interpretation of data from evaluation programs.
- 845 Supervision of Home Economics Teaching** G 3  
(702) *A. 3 cl.*  
*Prereq.: 846.*  
For experienced teachers of home economics who are interested in supervising student teachers or in working with home economics teachers in service.
- 846 The Teaching of Home Economics** G 3  
(741) *Sp. 3 cl.*  
*Prereq.: 841 or equiv. and permission of instructor.*  
Home economics in integrated, core, experimental, and other special types of programs.
- 860 The Family: The Early Years** G 3  
(761) *Sp. 2 1½-hr. cl.*  
*Prereq.: Psychol. 661, Soc. 463 or equiv. and graduate standing.*  
Relationships and adjustments in family living with emphasis on the early and expanding stages of the family life cycle.
- 861 The Family: Middle and Later Years** G 3  
*Su, A. 3 cl.*  
*Prereq.: 860.*  
The interrelationship and adjustment of families with emphasis on the middle and later years of the life cycle.
- 862 Seminar in Family and Child Development** G 3 or 5  
(861) *W. 1-3 cl.*  
*Prereq.: Graduate standing in Home Ec. and permission of instructor.*  
*Repeatable to a maximum of 15 cr. hrs.*  
a. Parent-Child Relationships—*W.\**  
b. Learning—Theory and Its Relationship to Nursery Education—*W.\**
- 870 Clothing: Fashion** G 5  
(670) *W. 3 cl. plus independent study.*  
*Prereq.: 672 and 25 cr. hrs. in courses in Soc., Psychol., Econ. or Bus. Org.*  
Fashion as a social and economic force—its influence on production, distribution, and consumption of textiles and clothing.
- 871† Textiles: Chemical Analysis** G 5  
(771) *W. 1 cl., 2 4-hr. lab.*  
*Prereq.: 471, 893.03, and Chem. 242, 243.*  
Application of chemical techniques to the quantitative and qualitative analysis of textile materials, including analysis of fiber content, and non-fibrous materials. *Lapitsky.*
- 872 Seminar in Textiles and Clothing** G 3 or 5  
(801) *Su, A, Sp. 2-3 cl.*  
*Prereq.: 672 and 870 or 671, or 842 and Ed. 845, depending on emphasis of topic and permission of instructor.*  
*Repeatable to a maximum of 15 cr. hrs.*  
a. Economics of Textiles—*A.*  
b. Social-Psychological Aspect of Clothing—*W.*  
c. Educational Trends in Textiles and Clothing—*Sp.*  
d. Historic Textiles—*Sp.*
- 993 Individual Studies** G 2, 3 or 5  
(701) *Su, A, W, Sp. 1 conf. or more.*  
*Prereq.: Permission of instructor.*  
Problems in various phases of home economics chosen for individual study.  
993.01 Food  
993.02 Nutrition and Dietetics  
993.03 Textiles  
993.04 Clothing  
993.05 Home Furnishings and Housing  
993.06 Household Equipment  
993.07 Home Management and Family Economics  
993.08 Institution Management, Equipment, and Food Buying  
993.09 Home Economics Education  
993.10 Family and Child Development
- 898 Interdepartmental Seminar in Nutrition and Food Technology** G 1  
*Sp.*  
*(See under Interdepartmental Seminars.)*



- 899 **Interdepartmental Seminar** G 1-5  
A, W, Sp.  
(See under *Interdepartmental Seminars*.)

- 999 **Research in Home Economics** G Arr.  
(950) Su, A, W, Sp.  
Research for thesis or dissertation purposes only.

## Horticulture

Office: 118 Horticulture and Forestry Building, 1827 Neil Avenue

Professors Howlett (Chairman), Alban, Beattie, Brown, Cahoon, Cowen, Geisman, Gould, Hartman, Hill, Kiplinger, Kretchman, Reisch, and Wittmeyer; Associate Professors Banta, Brooks, Caldwell, Clements, Kawase, Tayama, and Touse; Assistant Professors Gallander and Smith.

- 111 **Introduction to Landscape Horticulture** U 3  
(408) A. 2 cl., 1-hr. lab.

Value of landscape horticulture to the individual and community including culture, identification, and use of plants in planting design and interior decoration. *Reisch*.

### GENERAL PREREQUISITES FOR COURSES NUMBERED 200

Unless otherwise indicated, the prerequisites for 200 courses are 45 cr. hrs. in collegiate courses, exclusive of ROTC and Phys. Ed.; or specified course(s) numbered 100-199.

### Plant Science in Agriculture

(See *Agron. 200*)

(Offered in cooperation with the Departments of Hort. and Forest. and Agron.)

- 203 **Horticultural Morphology** U 5  
(409) A, Sp. 5 cl.

A study of horticultural plant materials emphasizing the interpretation of gross plant structures and their development in relation to cultural practices and the environment. *Hartman*.

- 241 **Food Preservation** U 3  
(423) Sp. 3 cl.

Introduction to the food processing industry; principles involved in the modern methods of assembling, processing, and distribution of food. *Gould*.

### GENERAL PREREQUISITES FOR COURSES NUMBERED 300 AND 400

Unless otherwise indicated, the prerequisites for 300 and 400 courses are 90 cr. hrs. in collegiate courses, exclusive of ROTC and Phys. Ed.; or specified course(s) numbered 100-399.

- 431 **Landscape Horticulture I—Herbaceous Plants** U 5  
(544) Sp. 3 cl., 2 2-hr. lab.  
Prereq.: 203 and Bot. 101.

The identification, culture and landscape use of bulbs, annuals, herbaceous perennials, and garden roses; identification of lawn grasses and turf management are also covered.

- 432 **Landscape Horticulture II—Woody Deciduous Plants** U 5  
(550) A. 3 cl., 2 2-hr. lab.  
Prereq.: 203 and Bot. 101.

A detailed study of deciduous trees, shrubs and vines, their identification, growth habits, culture, adaptation to environmental conditions, uses, combinations, and management in landscape plantings. *Reisch*.

- 433 **Landscape Horticulture III—Woody Evergreen Plants** U 5  
(551) W. 3 cl., 2 2-hr. lab.  
Prereq.: 203 and Bot. 101.

Detailed study of narrow and broadleaf evergreens, their identification, growth habits, culture, uses, and management in landscape plantings; winter characteristics of deciduous plants reviewed. *Reisch*.

- 434 **Landscape Horticulture IV—Woody Plants** U 5  
(552) Sp. 3 cl., 2 2-hr. lab.  
Prereq.: 432 and 433.

Woody plant use for specific landscape function and unusual environment situations; aesthetic features of plants are studied in detail with emphasis on selected major genera. *Reisch*.

- 441 **Processing of Fruit and Vegetable Products** U 5  
(524) W. 3 cl., 2 2-hr. lab.  
Prereq.: Chem. 102 or 122.

Fundamentals essential to commercial processing and utilization of fruits, vegetables, and related food products. *Gould*.

- 442 **Quality Attributes of Fruits, Vegetables, and Related Foods** U 5  
Sp. 3 cl., 2 2-hr. lab.  
Prereq.: Chem. 102 or 122.

Identifying, evaluating and controlling quality attributes of fresh and processed fruits, vegetables, and related products as to consumer acceptance, nutrition, and use. *Gould*.

- 450 **Principles of Vegetable Crop Production** U 5  
(522) W. 4 cl., 2-hr. lab.  
Prereq.: 203.

The production and utilization of vegetable crops, including potatoes, with emphasis on environmental factors which influence growing and handling of these crops. *Alban*.

- 461 **Principles of Tree Fruit Production** U 5  
(503) A. 4 cl., 2-hr. lab.  
Prereq.: 203 or equiv.

A study of the fundamental principles of pome and stone fruit production with emphasis on recognition and solution of problems according to modern scientific concepts. *Hartman*.

- 462 **Principles of Small Fruit Production** U 5  
(504) W. 4 cl., 2-hr. lab.  
Prereq.: 203.

A study of small fruit production with emphasis on the recent biological advances from which this technology has evolved. *Hill*.

**489 Horticultural Industries Experience U 2**(570) *Su, A, W, Sp.**Prereq.: Major standing in Hort.**Repeatable to a maximum of 4 cr. hrs.**Required for two qtrs. for students majoring in Land. Hort. under Agr. Ind. degree program.*

Ten weeks of planned and supervised practical experience in an approved horticultural enterprise, including completion of a special problem with a written report.

**GENERAL PREREQUISITES FOR COURSES  
NUMBERED 500**

Unless otherwise indicated, the prerequisites for 500 courses are 15 cr. hrs. in courses in the same discipline numbered 200 or higher, or 10 cr. hrs. in courses numbered 200 or higher in the same discipline, plus 10 cr. hrs. in courses numbered 200 or higher in specified allied disciplines; or baccalaureate degree.

**515 Plant Propagation U 5**(440) *Sp. 4 cl., 1 2-hr. lab.**Prereq.: 203, 431 and 432, Bot. 101.**Not open to students with credit for 415.*

Study of the principles and commercial practices involved in the sexual and asexual propagation of horticultural plants; facilities, equipment, and pathogen-free stock are considered.

**593 Individual Studies U 2, 3 or 5**(701) *Su, A, W, Sp.**Prereq.: Senior standing in Hort.*

Special studies in the fields of fruit crops, vegetable crops, florist crops, landscape horticulture, and processing and technology of fruits, vegetables, and related crops.

**599 Honors Course U 2, 3 or 5***A, W, Sp.**Prereq.: Honors Program.*

Special studies in the fields of fruit crops, vegetable crops, florist crops, landscape horticulture, and processing and technology of fruits, vegetables, and related products.

**GENERAL PREREQUISITES FOR COURSES  
NUMBERED 600**

Unless otherwise indicated, the prerequisites for 600 courses are 15 cr. hrs. in courses in the same discipline numbered 300 or higher, or 10 cr. hrs. in courses numbered 300 or higher in the same discipline, plus 10 cr. hrs. in courses numbered 300 or higher in specified allied disciplines.

**601 Horticultural Plant Breeding U G 3***W. 2 cl., 1 2-hr. lab.**Prereq.: 422, or 450 or 461, Biol. 100.*

Plant breeding methods and genetic principles applied to horticultural plant improvement, including fundamentals of seed production, variety evaluation, certification, and maintenance. *W. N. Brown.*

**609 The Post-Harvest Physiology of Horticultural Crops U G 5***A. 3 lec., 2-hr. lab., 1-hr. assigned reading.**Prereq.: 422 or 450, 461, 462 and Bot. 631.*

The basic principles of post-harvest physiology, handling, and storage of fruits, vegetables, ornamentals, and flowers are stressed along with operational techniques of modern storages. *Kretchman.*

**610 Weed Control in Horticultural Crops U G 3***Sp. 3 cl.**Prereq.: 15 cr. hr. Hort. and 10 cr. hrs. Bot.*

A study of environmental, and cultural factors which influence weed development in horticultural crops and a review of the principles of chemical and mechanical weed control. *Alban.*

**611 Tropical and Subtropical Fruit and Vegetable Production U G 5***A. 4 cl., 2-hr. lab.**Prereq.: Senior or graduate standing plus minimum of 20 cr. hrs. Biol. Sc. and Agron. 543.*

A study of important tropical and subtropical fruits and vegetables, with emphasis on latest technological advances to achieve optimum quantitative and qualitative yields.

**621 Greenhouse Environment Control U G 5**(542) *A. 4 cl., 1 3-hr. lab.**Prereq.: 515, Bot. 101, and 630 or concur.**Not open to students with credit for 422.*

Principles and practices of greenhouse and growth chamber operation including construction, heating, cooling, light, photoperiodism, temperature, humidity, ventilation, moisture, soils, nutrition, and pests. *Kiplinger.*

**622 Commercial Floriculture I—Potted Plants U G 5**(643) *W. 4 cl., 1 3-hr. lab.**Prereq.: 621, Bot. 630, and 631 or concur.*

Physiological principles and environmental factors in production of azaleas, begonias, bulbs, chrysanthemums, cyclamen, geraniums, hydrangeas, poinsettias, roses, saintpaulias, and other potted flowering and foliage plants. *Kiplinger.*

**623 Commercial Floriculture II—Cut Flowers U G 5**(645) *Sp. 4 cl., 1 3-hr. lab.**Prereq.: 422 and Bot. 630 and 631 or concur.*

Physiological principles and environmental factors in production of asters, carnations, chrysanthemums, orchids, roses, snapdragons and other cut flower crops; production costs of crops are analyzed. *Kiplinger.*

**624 Commercial Floriculture III—Design and Marketing U G 5**(651) *Sp. 3 cl., 2 2-hr. labs.**Prereq.: 422 and Econ. 201.*

Fundamentals of commercial floral design; flower shop management; principles and practices in handling, packaging, and selling florists' crops and supplies through wholesale and retail outlets. *Kiplinger and Reisch.*

**641 Unit Operations in Processing Fruits, Vegetables and Related Foods I U G 5**(631) *Su. 3 cl., 2 3-hr. labs.**Prereq.: 441.*

Unit processes of handling, grading, cleaning, sorting, peeling, pumping, change in form, and filling as related to commercial processing of fruits, vegetables, and related products.



**642 Unit Operations in Processing Fruits, Vegetables, and Related Foods II** U G 5

(624) A. 3 cl., 2 2-hr. labs.

Prereq.: 441.

Unit processes of extracting, filtering, and emulsifying, carbonating, gassing, enrobing, compounding, forming, and fortifying as related to food manufacture. *Geisman*.

**650 Greenhouse Vegetable Crops** U G 5

(526) A. 3 cl., 4 lab. hrs.

Prereq.: 621, Bot. 630.

A study of the origin and development of the vegetable forcing industry and present-day cultural practices with reference to the more important greenhouse vegetable crops. *Alban*.

**652 Advanced Vegetable Crops** U G 5

(622) Sp. 4 cl., 1 2-hr. lab.

Prereq.: 450.

The culture of the principal vegetable crops, including history, plant characteristics, physiology, propagation, climatic and edaphic adaptations, and specialized production technology. *W. N. Brown*.

**690 Colloquia** U G 2

A, W, Sp.

Prereq.: Senior standing.

Topic to be announced.

**694 Special Group Studies** U G 2, 3 or 5

A, W, Sp.

Prereq.: Senior or graduate standing.

Special group studies in the fields of fruit crops, vegetable crops, florist crops, landscape horticulture, and processing and technology.

**699 Junior Seminar** U G 2

A, W, Sp.

Review and interpretation of research literature.

### GENERAL PREREQUISITES FOR COURSES NUMBERED 700

Unless otherwise indicated, the prerequisites for 700 courses are 15 cr. hrs. in courses in the same discipline numbered 400 or higher, plus additional specified course(s) numbered 600 or higher.

**731 Arboriculture** U G 5

(683) A. 4 cl., 1 3-hr. lab.

Prereq.: 432 and Bot. 631.

Environmental factors affecting plant growth and the planting, fertilization, pruning, cabling, and pest control practices in commercial arboriculture, city forestry, park, and industrial grounds maintenance. *Reisch*.

**732 Advanced Plant Propagation** U G 5

(713) W. 4 cl., 1 2-hr. lab.

Prereq.: 432, 515, 621, and Bot. 630, and 631 or concur.

A study of the basic anatomical and physiological factors involved in the propagation of horticultural plants.

**733 Management of Nursery and Garden Store Operations** P G 5

(650) Sp. 4 cl., 3-hr. lab.

Prereq.: 432, 433, 515, 621, Agron. 240 and Bot. 430.

Detailed consideration of factors involved in site selection and operation of commercial nurseries and garden centers; production and marketing of ornamental plants and related products. *Reisch*.

**741 Food Regulations and Product Examination** U G 5

(629) W. 3 cl., 2 2-hr. labs.

Prereq.: 241 and 442.

Food laws, regulations, grade standards, and the technical control of processed foods; interpretation of laboratory analysis for control of product quality. *Gould*.

**794 Special Group Studies in the Processing of Fruits, Vegetables, Related Food Products** U G 2

(710) Prereq.: 641, 642 and 741.

Repeatable by undergraduates to a maximum of 3 cr. hrs.

- Plant Sanitation and Waste Disposal. *Su*.
- Processing Methodology. *A. Gould*.
- Packaging Materials and Methodology. *W. Geisman*.
- Color Evaluation and Advanced Quality Control. *Sp. Gould*.

### GENERAL PREREQUISITES FOR COURSES NUMBERED 800 AND 900

Unless otherwise indicated, the prerequisites for 800 and 900 courses are 30 cr. hrs. in courses in the same discipline, or 20 cr. hrs. in the same discipline, plus 25 cr. hrs. in specified allied disciplines.

**801 Advanced Studies in Horticultural Science** G 2 or 3

(810) A, W, Sp.

Prereq.: Permission of instructor.

- Morphological and anatomical studies of flowering and fruiting. *Sp. Hartman*.
- Morphological and anatomical studies of vegetative plant parts as influenced by environment. *W. Hartman*.
- Post-harvest physiology of horticultural crops and plants. *A. Kretschman*.
- Advanced vegetable physiology. *A. Alban*.
- Advanced horticultural crop breeding. *W. Brown*.
- Fruit and vegetable processing and specialty products. *A. Gould*.
- Quality control in fruit and vegetable processing. *Sp. Gould*.
- Physiological studies in floriculture crops. *A. Kiplinger*.
- Microclimates in landscape plantings. *Sp. Reisch*.

**804 Seminar** G 2

A, W.

**805\* Seminar in the Historical Literature and Current Developments of Horticulture** G 4

(705) A.

Prereq.: 461 or 652 or 622 or 731.

History and literature of horticulture from the 8th Century B.C. to the present; developments during the 20th Century emphasized; current trends appraised. *Howlett*.

**811 Advanced Plant Nutrition I— G 5**  
**Macro-nutrients**

A. 3 cl., 4 lab. hrs.

Prereq.: Bot. 631 or equiv.

Effect of major nutrient elements exclusive of calcium upon development of horticultural plants; physiology and biochemical changes occurring within plants and diagnosing deficiencies and excesses. *Howlett.*

**812 Advanced Plant Nutrition II— G 5**  
**Micro-nutrients**

(712) W. 2 cl., 2 2-hr. labs., assigned reading 1 hr.

Prereq.: Bot. 631 or equiv.

Effects of deficiencies and excesses of calcium and micro-nutrients upon growth and development of horticultural plants including techniques of detecting and correcting such conditions. *Hill.*

**897 Interdepartmental Seminar G 1**  
**in Natural Resources**

A, W, Sp.

(See under *Interdepartmental Seminars.*)**898 Interdepartmental Seminar G 1**  
**in Nutrition and Food Technology**

Sp.

(See under *Interdepartmental Seminars.*)**993 Individual Studies G 2, 3 or 5**

Su, A, W, Sp.

Special studies in the fields of fruit crops, vegetable crops, florist crops, landscape horticulture, and processing and technology of fruits, vegetables, and related food products.

**999 Research Thesis or Dissertation G 1-15**

(930) Su, A, W, Sp.

Research for thesis or dissertation purposes only.

Analysis of the hospital environment with emphasis on components of the health care system and their interrelationships; examination of public issues and hospital planning. *Howland, Lachner, and Staff.*

**827 Foundations G 3**  
**of Hospital Management**

A. 3 cl.

Prereq.: 825 or permission of instructor.

A consideration of resource allocation within the hospital organization; study of mechanisms for financial and quality controls. *Evans, Bergman, and Staff.*

**828 Health Care System G 3**

W. 3 cl.

Prereq.: 826 or permission of instructor.

Examination of socio-economic forces operating on the health care system; values underlying the system and socio-economic implications of illness. *Keller, Vitello, and Staff.*

**829 Functional Aspects G 3**  
**of Hospital Management**

W. 3 cl.

Prereq.: 827 or permission of instructor.

Examination and analysis of the hospital organization in its various forms; consideration of management problems involving departmentalization of functions. *Meising, Butts, and Staff.*

**830 Hospital and the Community G 3**

Sp. 3 cl.

Prereq.: 827 or permission of instructor.

Provision of services in the light of community needs and demands; observation of the operation of a local hospital and preparation of a written analysis. *Keller, Shillito, and Staff.*

## Hospital Administration

(School of Allied Medical Professions)

Office: 110 University Hospital, 410 West 10th Avenue

Professors Lachner (Division Director), Atwell, Keller, Meiling, and Shillito; Associate Professor Evans; Instructors Bergman, Butts, and Vitello.

**825 Hospital and Medical Care G 3**  
**Administration**

Sp. 3 cl.

Prereq.: Admission to Graduate Program in Hospital and Health Services Administration or permission of instructor.

Analysis of the hospital as an organization, and its social role; discussion of functions and relationships of the medical staff, Board of Trustees, and Administration. *Atwell and Staff.*

**826 The Environment and Structural G 3**  
**Components of Medical Care**

A. 3 cl.

Prereq.: 825 or permission of instructor.

## Industrial Engineering

Office: 125 Industrial Engineering Building, 190 West 19th Avenue

Professors Baker (Chairman), Bishop, Carson, Edmondson (Emeritus), Lehoczy (Emeritus), Moore, Morris, Pepper, and Rockwell; Associate Professor Miller; Assistant Professors Francis, Giffin, Hoover, Kibbey, and Neuhardt; and Instructors.

**201 Foundry Practice\* U 3**

(404) Sp. 2 cl., 4 lab. hrs.

Prereq.: Ed. 2nd yr. standing or permission of chairman.

Not open to students in College of Engineering.

(Safety glasses must be worn in laboratory.)

Laboratory practice in bench, floor and machine molding, casting of grey iron and non-ferrous alloys with emphasis on non-ferrous technology.



**202 Machine Shop Practice\* U 5**

(420) A, Sp. 10 cl. and lab. hrs.

Prereq.: Eng. Gr. 100 or equiv. Ed. 2nd yr. standing or permission of chairman.

Not open to students in College of Engineering.

(Safety glasses must be worn in laboratory.)

Laboratory practice on basic machine tools. Course objective is to develop skills and knowledge that are essential for the Industrial Arts teacher at the secondary level.

**401 Manufacturing Processes\* U 4**

(519) A, W, Sp. 2 cl., 6 lab. hrs.

Prereq.: Engr. 3rd yr. standing or permission of chairman.

(Safety glasses must be worn in laboratory.)

Fundamentals and interrelationships of the principal manufacturing processes; laboratory work in the areas of foundry, machine tools, heat treating and welding.

**402 Machine Tool Applications\* U 5**

(761) W, Sp. 3 cl.

Prereq.: 401 or permission of chairman.

(Safety glasses must be worn in laboratory.)

Industrial Engineering aspects of machine tool usage. Emphasis upon process choice and economic factors.

**403 The Principles of Engineering Management U 5**

(608) A, Sp. 5 cl.

Prereq.: 3rd yr. standing and permission of instructor.

A consideration from an engineering standpoint of the fundamentals of engineering management.

**431 Manufacturing Equipment and Methods U 3**

(614) A. 5 cl., 1-hr. lab.

Not open to students in College of Engineering.

A survey including lectures, laboratory demonstrations and field trips, to acquaint the student with industrial production methods and equipment.

**501 Methods Analysis and Time Study U 5**

(663) A, W. 3 cl., 4 lab. hrs.

Prereq.: 403 and Math. 426.

Principles, applications, and purposes of methods analysis, work measurement, process and operation analysis.

**502 Work Measurement and Standards U 5**

(664) A, Sp. 3 cl., 4 lab. hrs.

Prereq.: 501.

Principles, applications, and purposes of work measurement and standards; characteristics and limitations of techniques are discussed in detail, including link analysis and ratio delay.

\*Courses Indust. E. 201, 202, 401, 402, and Weld. E. 240 require the use of safety glasses; however, each student needs only one pair for all courses. In the event that the student must have prescription lenses, he shall obtain his safety glasses during the quarter preceding their first use. This may be done through the Optometry Clinic, Optometry Building, or through any registered optometrist.

**503 Accident Prevention Methodology U G 3**

(771) A, W. 3 cl.

Prereq.: 401 and Math. 425.

An approach to industrial accident measurement and control; analysis of human error performance resulting from breakdowns in sensory, decision making and control functions of man.

**504 Engineering Economy U G 3**

(761) W, Sp. 3 cl.

Prereq.: Acc. 212 and Math. 426.

Economic analysis of engineering projects and methods of operation; introduction to the analysis of engineering decisions. Morris.

**505 Production Engineering U G 5**

(709) W, Sp. 3 cl., 6 lab. hrs.

Prereq.: 402, 501.

Fundamentals of production tooling and correlating with design and specifications of the product. Kibbey.

**506 Design of Production Systems U 5**

(708) A, Sp. 3 cl., 4 lab. hrs.

Prereq.: 501, concur. 502.

Integration of the methods and analytical techniques of industrial engineering into the design of a complete production system.

**507 Production Programming U G 3**

(764) A, Sp. 3 cl.

Prereq.: 504.

Not open to students with credit for 602.

Mathematical formulation and solution of problems of scheduling, inventory control, logistics, etc.; course covers various linear models. Bishop.

**531 Tool Engineering U 3**

(667) A. 2 cl., 4 lab. hrs.

Prereq.: 401.

The design of tools, jigs, and fixtures; the basic elements of fixture design, such as form, locating points, clamping devices, and the use of standardized parts.

**532 Motion and Time Study U 3**

(633) A, W, Sp. 3 cl., 1 1/2-hr. lab.

Prereq.: Bus. Org. 500, 630, and Econ. 442.

Not open to students in College of Engineering.

The objectives, scope, and techniques of time study and methods analysis are considered from the standpoint of the factory and office supervisor.

**533 Time and Motion Study U G 3**

(714) Sp.

Prereq.: 3rd yr. standing.

Not open to majors in Indust. E. Not open to students with credit for 501, 502.

Principles, aims, methods, and applications of time and motion study including job analysis, job standardization, formula construction, job evaluation and wage evaluation. Baker.

**534 Principles of Industrial Engineering U G 4**

(715) A, W, Sp. 4 cl.

Prereq.: Professional Division 3rd yr. standing, Math. 421.

Not open to majors in Indust. E.

A survey of the industrial engineering phase of manufacturing with emphasis on principles and problem solving methods.

- 589 Junior Inspection Trip** U 2  
(630) *Sp. One week at end of W. Qtr.*  
*Prereq.: Major standing in Indust. E.*

A group visit to various industrial plants. Students must register for the course and pay the laboratory fee at the beginning of the Spring Quarter.

- 601 Industrial Quality Control** U G 3  
(706) *W, Sp. 3 cl.*  
*Prereq.: 403 and Math. 426.*

The application of probability theory, statistics, and control theory to problems in product inspection and process control; economic evaluation of quality control techniques. *Neuhardt.*

- 685 Practical Experience in an Industrial Organization** U 6  
(639) *A. Ten weeks during Su. between the 4th and 5th years.*

To be obtained in some engineering or industrial organization. The student shall present a satisfactory report upon the work done.

- 693 Special Problems in Industrial Engineering** U G 1-6  
(799) *Su, A, W, Sp.*  
*Prereq.: 5th yr. standing and permission of instructor.*

This course is intended to give the advanced student an opportunity to pursue special studies not offered in fixed curricula.

- 750 Advanced Studies in Industrial Engineering** U G 3-24  
(798) *Su, A, W, Sp.*  
*Prereq.: 5th yr. standing and permission of instructor.*  
*Repeatable to a maximum of 24 cr. hrs.*

The student must register for specific classes in areas as indicated below, and may register for more than one at a time.

- 750.01 Job Evaluation
- 750.02 Organized Labor and Industrial Methodology
- 750.03 Industrial Applications for Statistics
- 750.04 Quality Control
- 750.05 Engineering Economy
- 750.06 Production Planning and Control
- 750.07 Contemporary Problems in Plant Layout and Design
- 750.08 Materials Handling
- 750.09 Time Standards and Estimates
- 750.10 Human Factors in System Design
- 750.11 Organization of Industrial Engineering Functions
- 750.12 Production Engineering
- 750.13 Industrial Safety Problems

- 811 Methods Engineering** G 3-12  
*Su, A, W, Sp.*  
*Prereq.: 501 and 502.*

Advanced work in one or more special phases of time study, motion study, job evaluation, wage analysis and payment systems, speed and effort rating; the viewpoint of unions and problems arising from labor-management relationships. *Baker.*

- 812 Advanced Systems Design** G 3  
*W.*  
*Prereq.: 750.10.*

Advanced work in the analysis and design of man-machine systems. *Giffin.*

- 821 Problems in Production Engineering** G 3-12  
*Su, A, W, Sp.*  
*Prereq.: 505.*

Advanced work in one or more phases of Production Engineering involving problems in production design, equipment planning, tool design, quantity and quality control. *Kibbey.*

- 828 Advanced Studies in Plant Design and Materials Handling** G 3-12  
*Su, A, W, Sp.*  
*Prereq.: 506.*

Advanced work in one or more special phases of plant design and materials handling. *Müller.*

- 830 Production Programming I** G 3  
*A. 3 cl.*  
*Prereq.: 842.*

The application of the mathematics of linear models; determinants, simultaneous equations, and linear programming, to industrial engineering problems. *Francis.*

- 831 Production Programming II** G 3  
*W. 3 cl.*  
*Prereq.: 830, or Math. 571 and permission of instructor.*

The construction and application of linear optimization models for production, scheduling and inventory problems. *Francis.*

- 832 Advanced Production Programming** G 3  
*Sp. 3 cl.*  
*Prereq.: 831.*

The construction and application of non-linear optimization models for production process design and control. *Francis.*

- 840 Operations Research** G 3  
*Su, A, W, Sp.*  
*Prereq.: 601 and 504, or equiv.*

Advanced work on the methodology and techniques of Operations Research.

- 842 Operations Research I** G 3  
*A, W.*  
*Prereq.: Calculus, probability theory and statistical methods, and permission of instructor.*

Introduction to the nature and problems of Operations Research and the study of actual case histories in the field.

- 843 Operations Research II** G 3  
*W, Sp.*  
*Prereq.: 842.*

The position of the model in Operations Research and the study of the important techniques and formal approaches to research problems.



## 844 Operations Research III G 3

Sp.

Prereq.: 843.

Consideration of topics in Operations Research including research methodology in the various sciences, and the conduct of actual Operations Research investigations.

## 851 Personnel Research in Engineering Industries G 3-12

Su, A, W, Sp.

Prereq.: 403, 502.

Advanced work in one of the several phases of personnel management in engineering industries. *Baker.*

## 861 Research in Decision Processes G 3-12

Su, A, W, Sp.

Prereq.: 504 and 507.

Advanced work in decision theory and processes including criterion research, decision making under uncertainty and in conflict situations, and gaming techniques. *Morris.*

## 862 Decision Theory G 3

Su, A, W, Sp.

Prereq.: 504, 601, and permission of instructor.

Introduction to normative decision models and their applications. *Morris.*

## 863 Control Theory G 3

A, W, Sp.

Prereq.: 601, 507, 750.04.

Advanced work in the theory of control of industrial operations. *Bishop.*

## 866 Programming and Control Research G 3-12

Su, A, W, Sp.

Prereq.: 601, 504, 507.

Advanced work in the several phases of programming and control theory: consists primarily of application of mathematical methods to the formulation and solution of process programming and control problems. *Bishop.*

## 871 Safety Engineering Research G 3-12

A, W, Sp.

Prereq.: 503.

Advanced work in one or more phases of safety engineering; plant design, equipment design, and other accident prevention programs. *Rockwell.*

## 881 Seminar in Industrial Engineering G 2

(801) A, W, Sp.

(802) Repeatable to a maximum of 6 cr. hrs.

(803)

## 899 Interdepartmental Seminar G 1-5

Su, A, W, Sp.

(See under Interdepartmental Seminars.)

## 999 Research in Industrial Engineering G Arr.

Su, A, W, Sp.

Research for thesis or dissertation purposes only.

# Interdepartmental Seminars

## 895 Interdepartmental Seminar in Radio Astronomy G 1-5

A, W, Sp.

Techniques of Radio-Astronomy. Present state of knowledge of the universe as determined by radio-astronomy. Given cooperatively by the Departments of Astronomy and Electrical Engineering. *Ko, Kraus, and Slettebak.*

## 896 Interdepartmental Seminar in Polar and Alpine Studies G 1-3

Sp. 1-3 hr. cl.

Permission of instructor.

Repeatable to a maximum of 9 cr. hrs.

A seminar on selected topics involving anthropology, biology, climatology, exploration, geology, glaciology, microbiology, and soils. Given cooperatively by the Institute of Polar Studies, Biological Sciences, and the following departments: Agronomy, Anthropology, Civil Engineering, and Geography.

## 897 Interdepartmental Seminar in Natural Resources G 1

A, W, Sp.

A seminar in natural resources conservation. Given cooperatively by the Natural Resources Institute, Biological Sciences, and the following departments: Agronomy, Agricultural Economics, Agricultural Engineering, Geography, Horticulture and Forestry, Plant Pathology, and Rural Sociology.

## 898 Interdepartmental Seminar in Nutrition and Food Technology G 1

Sp.

A seminar in nutrition and in related fields of food technology. Given cooperatively by the Institute of Nutrition, Biological Sciences, and the following departments: Animal Science, Dairy Science, Dairy Technology, Home Economics, Horticulture and Forestry, Physiological Chemistry, Plant Pathology, Poultry Science, and Preventive Medicine.

## 899 Interdepartmental Seminars G 1-5

Two or more departments may collaborate in presenting seminars on subjects of mutual interest. Topics to be announced.

# International Studies

Office: 100 University Hall, 216 North Oval Drive

Associate Professor Nemzer (Political Science) (Chairman); Professors Fisher (History), Bourguignon (Anthropology), Dynes (Sociology), Hausman (Fine Arts), Bulatkin (Romance Languages); Associate Professor Underwood (Journalism); Assistant Professors Kresky (Slavic Languages), Witthuhn (Geography), Michael (Economics), Axline (Political Science).

## 100 Basic Issues in World Affairs U 5

(410) W. 3 cl.

General introduction to contemporary international problems, conducted cooperatively by members of several departments.

**230 Introduction to the Soviet Union U 5**  
(540) A, W, Sp. 5 cl.

A survey of the land, people, history, politics, social institutions, literature, and arts of the Soviet Union, conducted by members of several departments. *Nemzer.*

**235 The Oriental World U 5**  
(520) Sp. 5 cl.

Interdepartmental survey of contemporary Asian civilization; geographic and racial background, historical and cultural heritage, social organizations, economic and political problems, and international relations.

**501 Selected Problems in International Studies U G 5**

(601) W. 2 cl.

*Prereq.:* Pol. Sc. 545 or equiv.

*Open only to Internat. S. majors or students with equiv. preparation.*

Panel discussions, informal conferences, and a reading and research program arranged to meet the special needs of those enrolled. *Nemzer.*

**783 Honors Course U 3-5**

(705) A, W, Sp.

*Prereq.:* Senior standing and 40 cr. hrs. in the social sciences including 15 cr. hrs. in courses acceptable for a major in Internat. S., with a grade of "A" in at least half of these major courses and an average of "B" in the remainder. *Permission of instructor and Honors Committee of the College.*

*Repeatable to a maximum of 15 cr. hrs.*

Informal conferences to allow full scope of the initiative of the student. A special topic is assigned to each student. The results are tested by conferences and special reports. *Minimum grade of B required for special honors credit.*

## Italian

Office: 116 Derby Hall, 154 North Oval Drive

**Professors** Bulatkin (Chairman) and Griffin; **Associate Professor** Mancini; **Assistant Professors** Angelo and Cassell; **Lecturers** Jahn, Opelt, and Thalman.

**101 Elementary Italian U 5**

(401) A, W, Sp. 5 cl.

*Not open to students who are not eligible to take Engl. 101. May not be taken concur. with French 101-102, Port. 101-102, Span. 101-102. Credit in 101 will be counted toward graduation only if followed by successful completion of 102, or if taken after successful completion of the fourth regular university course in another foreign language.*

Elements of Italian grammar with oral and written exercises. Attention to ear training and oral practice. Elementary reading based on Italian geography, history and customs.

**102 Elementary Italian U 5**

(402) A, W, Sp. 5 cl.

*Prereq.:* 101.

*May not be taken concur. with French 101-102, Port. 101-102, Span. 101-102.*

The elements of Italian grammar with abundant oral and written exercises; development of conversational skill; reading, vocabulary building, attention to Italian idioms; modern Italian prose.

**103 Intermediate Italian U 5**

A, W, Sp. 5 cl.

*Prereq.:* 102.

Review of Italian grammar; reading of short stories and plays; increased attention to development of oral and written proficiency.

**104 Intermediate Italian U 5**

A, W, Sp. 5 cl.

*Prereq.:* 103 or 112.

Intensive practice in oral and written Italian; reading of Italian plays, short stories, and nonfiction of cultural and historical importance; grammar and idiom review.

**112 Intensive Italian U 5, 10, 15**

*Su. 15 cl. Enrollment limited to 20 students.*

*Full time of student and full fees required.*

*Prereq.:* Permission of chairman.

*Equiv. of 101, 102, and 103.*

*Students with credit for 101 or the equiv. may not register for more than 10 cr. hrs. Students with credit for 101 and 102 or the equiv. may not register for more than 5 cr. hrs. Students with credit for 103 or the equiv. may not register for credit.*

Elementary and intermediate Italian; intensive drill in forms, syntax, vocabulary, and idiom; reading of short stories and plays in Italian.

**202 Italian Conversation and Composition U 5**

(510) Sp. 5 cl.

*Prereq.:* 104 or permission of instructor.

**421 Contemporary Italian Drama U 5**

(503) W. 5 cl.

*Prereq.:* 104 or permission of instructor.

Reading and analysis of representative plays of such authors as Pirandello, Betti, and DeFilippo.

**422 Contemporary Italian Poetry U 5**

(504) Sp. 5 cl.

*Prereq.:* 104 or permission of instructor.

Reading and analysis of poems representing the principle tendencies of contemporary Italian poetry with emphasis upon Montale, Ungaretti, and Quasimodo.

**423 Contemporary Italian Fiction U 5**

(505) A. 5 cl.

*Prereq.:* 104 or permission of instructor.

Narrative prose in Italy since the end of the Second World War; selected readings from such authors as Moravia, Vittorini, Pavese, and Cassola.

**533 Italian Literature in English U G 5**  
**Translation: 14th Century**

W. 5 cl.

*Not open to majors in Ital.*

Reading and interpretation of selections from Dante's *Divine Comedy*, Petrarch's *Canzoniere*, and Boccaccio's *Decameron*; discussion of their relation to the Middle Ages and the Renaissance.

**534 Italian Literature in English Translation: 15th and 16th Centuries U G 5**

Sp. 5 cl.

*Not open to majors in Ital.*

Readings in such authors as Leonardo, Castiglione, Machiavelli, Ariosto, Tasso; discussion of their place in the Renaissance.



**621\* Dante U G 5**(611) *W. 5 cl.**Prereq.: 10 cr. hrs. at the 400 level or permission of instructor.*Introduction to the reading of the *Divine Comedy*; analysis of major episodes. *Cassell.***622†\* Petrarch and Boccaccio U G 5**(612) *W. 5 cl.**Prereq.: 10 cr. hrs. at the 400 level or permission of instructor.*Historical and aesthetic analysis of Petrarch's poetry; Petrarchism as a European phenomenon; literary background of Boccaccio's prose and verse. Readings from the *Decameron*. *Cassell.***623†\* Modern Italian Literature U G 5**(613) *A. 5 cl.**Prereq.: 10 cr. hrs. at the 400 level or permission of instructor.*

Italian literature from 1800 to 1920; Foscolo, Leopardi, Manzoni, Verga, Svevo, Carducci, and Pascoli.

**624\* Contemporary Italian Literature U G 5***A. 5 cl.**Prereq.: 10 cr. hrs. in Ital. literature at the 400 level or permission of instructor.*

Intensive study of fiction, poetry and drama from such authors as Moravia, Pavese, Montale, Quasimodo, Pirandello, and Betti.

**625\* Italian Literature of the Renaissance U G 5***Sp. 5 cl.**Prereq.: 10 cr. hrs. in Ital. literature at the 400 level or permission of instructor.*

Readings in works of representative authors of the 15th and 16th centuries such as Leonardo, Michelangelo, Castiglione, Machiavelli, Ariosto, and Tasso.

**626†\* Italian Literature of the 17th and 18th Centuries U G 5***Sp. 5 cl.**Prereq.: 10 cr. hrs. in Ital. literature at the 400 level or permission of instructor.*

Readings in selected works of Campanella, Marino, Galilei, Metastasio, Vico, Goldoni, Parini, and Alfieri.

**694 Special Group Studies in Italian U G 1-5***Su, A, W, Sp.**Prereq.: Permission of instructor.**Repeatable to a maximum of 15 cr. hrs.***993 Individual Studies in Italian G 1-5***Su, A, W, Sp.**Prereq.: Permission of instructor.**Repeatable to a maximum of 15 cr. hrs.***994 Special Group Studies in Italian G 1-5***Su, A, W, Sp.**Prereq.: Permission of instructor.**Repeatable to a maximum of 15 cr. hrs.*

Investigation of minor problems in the various fields of Italian literature and language.

**999 Research in Italian Language or Literature G Arr.**(950) *Su, A, W, Sp.*Research for thesis or dissertation purposes only. *Manzini.*

## Japanese

Office: 200 University Hall, 216 North Oval Drive

Associate Professor Ching (Chairman); Professor Fillmore; Lecturer Kawamura; Instructors Kawai and Wright.

**101 Elementary Japanese U 5**(401) *A. 5 cl.**Kawai.***102 Elementary Japanese U 5**(402) *W. 5 cl.**Prereq.: 101.**Kawai.***103 Intermediate Japanese U 5**(403) *Sp. 5 cl.**Prereq.: 102.**Kawai.***104 Intermediate Japanese U 5**(404) *A. 5 cl.**Prereq.: 103.**Kawai.***251 Classical Japanese Literature in English Translation U 5***A. 5 cl.*A lecture and reading course in masterpieces of Japanese literature from the 8th to the 19th century. *Wright.***252 Modern Japanese Literature in English Translation U 5***W. 5 cl.*Japanese literature from earliest 19th century Western influences to present day; emphasis on the novel from Futabata Shime to Mishima Yukio; modern poetry and drama. *Wright.***405 Japanese Conversation U 3**(505) *W. 3 cl.**Prereq.: 104 or permission of instructor.*Practice in conversation. *Kawai.***406 Japanese Composition U 3**(506) *Sp. 3 cl.**Prereq.: 104 or permission of instructor.*Practice in composition; review of vocabulary and grammar. *Kawai.*

- 417†\* Study Tour of Japan** U 15  
 (517) Sp. 15 cl., 2 weeks at OSU; 8 weeks in Japan.  
 Prereq.: 25 cr. hrs. of Japan. or permission of instructor.

Advanced work in conversation and reading in order to prepare for the tour. In Japan only Japanese will be spoken. Some formal instruction will be given daily by the tour leaders.

- 609 Advanced Reading, Conversation, and Composition I** U G 3  
 A. 3 cl.  
 Prereq.: 405 and 406 or permission of instructor.

Reading of contemporary prose and verse, presentation of oral and written reports, drill in pronunciation, practice in translation and composition. Wright.

- 610 Advanced Reading, Conversation, and Composition II** U G 3  
 W. 3 cl.  
 Prereq.: 609 or permission of instructor.

Continuation of 609. Wright.

- 611 Advanced Reading, Conversation, and Composition III** U G 3  
 Sp. 3 cl.  
 Prereq.: 610 or permission of instructor.

Continuation of 610. Wright.

- 624 Japanese Phonetics** U G 5  
 W. 4 cl.  
 Prereq.: 101 and Ling. 601 or permission of instructor.

A detailed analysis of the phonetic structure of Standard Colloquial Japanese; comparisons with the other dialects and with English: an examination of competing orthographies. Fillmore.

- 626 The Structure of the Japanese Language** U G 5  
 Sp. 4 cl.  
 Prereq.: 104 and Ling. 601 or permission of instructor.

Descriptions of grammatical structures of Standard Colloquial Japanese; survey of Japanese grammatical tradition and literature within descriptive linguistics; presentation of syntactic rules within the model of transformational grammar. Fillmore.

- 651 Classical Japanese** U G 3  
 Sp. 3 cl.  
 Prereq.: 611 or permission of instructor.

A reading of classical literary works such as *Hōjōki*, *Uji Shūi Monogatari*, as well as *yaka* and *haiku* poetry. Wright.

- 693 Individual Studies in Japanese** U 2-5  
 (695) A, W, Sp.  
 Prereq.: Permission of instructor.  
 Repeatable to a maximum of 10 cr. hrs.

## Journalism

Office: 205 Journalism Building, 242 West 18th Avenue

Professors Hall (Director), Barton, Cullman, Maguire, Pollard (Emeritus), Rarick; Associate Professors Clarke, Gould, Norton, Peterson, Seifert, Underwood; Assistant Professors Bostwick, Drenten, Gaumer, Holsinger, Hudson, Laeuffer, Mullins, Scheaffer; Instructor Hunt.

- 101 Introduction to Mass Communication** U 3  
 (401) Su, A, W, Sp. 3 cl.  
 Prereq.: Engl. 101.

An introduction to newspapers, magazines, radio, television, public relations and other mass media.

- 102 The History of U. S. Journalism** U 3  
 (517) A, W, Sp. 3 cl.  
 Prereq.: 101.

Major currents in American journalism from colonial times, with emphasis on the responsibilities of a free press and the relationships between press and government.

- 201 News Writing I** U 3  
 (402) Su, A, W, Sp. 1 cl., 2 2-hr. labs.  
 Prereq.: 102.

Reporting and writing news stories, feature stories; and other types of news coverage.

- 202 News Writing II** U 3  
 Su, A, W, Sp. 1 cl., 2 2-hr. labs.  
 Prereq.: 201.

Continuation of 201 with emphasis on more complicated reporting and news writing.

- 203 Photojournalism** U 3  
 (510) Su, A, W, Sp. 2 cl., 1 2-hr. lab.  
 Prereq.: 201.

Reporting the news with a camera; how to recognize, develop, and create picture stories; experience in coordinating words and news pictures; picture editing; layout.

- 204 Editing** U 3  
 (501) Su, A, W, Sp. 2 cl., 2-hr. lab.  
 Prereq.: 201.

Editing of copy, headline writing, re-writing, and general copy desk work.

- 205 Journalism Laboratory** U 2  
 (509) Su, A, W, Sp. 2 3-hr. labs.

Prereq.: 202 and 204, or permission of instructor. Laboratory work on the Ohio State Lantern in one or more of the following: reporting, news writing, feature writing, editing, make-up, and critical writing.

- 206 Law of the Press, Radio and Television** U 3  
 (714) A, W, Sp. 3 cl.  
 Prereq.: 202 or permission of instructor.

History, principles, and provisions of the law of libel, slander, copyright and other statutes affecting newspapers, other publications and broadcasting.



**211 Typography and Printing U 3**  
 (519) Su, A, W, Sp. 2 cl., 2-hr. lab.  
 Typographic and printing processes and their relation to graphic arts in the mass media.

**401 News in Broadcasting U 3**  
 (605) Su, A, W, Sp. 2 cl., 2-hr. lab.  
*Prereq.: 204 or permission of instructor.*

Preparation and broadcasting of news; study of the development of news-type programs in the broadcasting industry, both radio and television.

**555 Factual Writing U G 5**  
 Su, A, W, Sp. 5 cl.  
*Prereq.: Engl. 103 or equiv.*  
*Not open to students majoring in Jour.*

Gathering and writing factual material; research interviewing, critical analysis, and rewriting are stressed.

- 555.01 Agriculture
- 555.02 Home Economics
- 555.03 Nursing
- 555.04 Dental-Medical
- 555.05 General

**601 Magazine Writing I U G 3**  
 (602) Su, A, W, Sp. 3 cl.  
*Prereq.: 205 or permission of instructor.*

Non-fiction writing for publication in general, professional, trade or Sunday magazines.

**602 Magazine Writing II U G 3**  
 (612) Su, A, W, Sp. 3 cl.  
*Prereq.: 601.*

Continuation of 601 with emphasis on the full-length magazine article.

**611 Reporting for Radio and Television U G 3**  
 (606) A, W, Sp. 2 cl., 2-hr. lab.  
*Prereq.: 401 or equiv.*

A study of ethical, aesthetic and technical problems in broadcast news reporting; use of audio-visual materials, instruments and techniques.

**612 Special Radio and Television News Programs U G 3**  
 (607) A, W, Sp. 2 2-hr. lec. labs.  
*Prereq.: 401 or permission of instructor.*

Planning and production of special news programs; such as the sportscast, the interview, special events, and documentaries.

### The Supervision of Journalism in Secondary Schools (See Ed. 614.)

**621 Journalism Laboratory U G 2**  
 (613) Su, A, W, Sp. 2 2-hr. labs.  
*Prereq.: 205 or permission of instructor.*  
*Repeatable to a maximum of 6 cr. hrs.*

Laboratory work at the School of Journalism or with a professional organization in reporting, feature writing, editing, photojournalism, or broadcasting.

- 621.01 News-Editorial
- 621.02 Radio and Television
- 621.03 Photojournalism

**622 Journalism Laboratory U G 2-4**  
 (615) Su, A, W, Sp.

*Prereq.: Permission of Director of the School of Journalism.*

*Repeatable to a maximum of 3 cr. hrs.*

Students hold responsible positions on the Ohio State Lantern or work with newspapers, broadcasting stations and other mass media.

- 622.01 News-Editorial
- 622.02 Radio and Television
- 622.03 Photojournalism

**623 The Writing of Reviews and Criticisms U G 3**

(603) Su, A, W, Sp.

*Prereq.: 205 or permission of instructor.*

Study of the work of the dramatic and literary critic, especially on newspapers and magazines; practice in writing reviews and criticisms.

**624 The Editorial Page U G 3**

(621) A, W, Sp. 1 2-hr. cl., conf. arr.

*Prereq.: Jour. 4th yr. standing or permission of instructor.*

Study of the purpose, form, style, and spirit of the editorial; consideration of current events, practice in news interpretation, and other editorial writing.

**625 Investigative Reporting U G 3**

(608) A, W, Sp. 1 2-hr. cl., conf. arr.

*Prereq.: Jour. 4th yr. standing or permission of instructor.*

Intensive reporting and writing.

**626 Newspaper Management, Circulation, and Advertising U G 5**

A, W, Sp. 4 cl., 2-hr. lab.

*Prereq.: Jour. 4th yr. standing or permission of instructor.*

Consideration of the tasks and problems of newspaper management with emphasis on circulation policies and methods and those affecting advertising.

**627 Advanced Editing U G 3**

A, W, Sp. 1 lec., 2 2-hr. labs.

*Prereq.: Jour. 3rd yr. standing or permission of instructor.*

Advanced theory and practice in news selection, preparation and display for newspaper, magazine, broadcast and photo-journalism media. Emphasis on the responsibility of the journalist.

- 627.01 News-Editorial
- 627.02 Radio-Television
- 627.03 Photojournalism
- 627.04 Magazine

**631 Public Relations I U G 3**

(617) Su, A, Sp. 3 cl.

*Prereq.: 3rd yr. standing.*

Survey of public relations—history, social, economics, and political implications; applications in business, industry, government, trade and professional associations and education, labor, social agencies and politics.

**632 Public Relations II U G 3**

(618) W. 3 cl.

*Prereq.: 631 or permission of instructor.*

Study of research methods in public relations and mass media; review of contemporary research in public opinion and attitude measurement.

**633 Public Relations III U G 3**  
(619) Sp. 3 cl.

*Prereq.: 631 or permission of instructor.*

Industrial editing; the history, development, and scope of institutional publications; practice in the planning and preparation of these publications.

**634 Public Relations IV U G 3**  
(627) A. 1 3-hr. cl.

*Prereq.: 631 or permission of instructor.*

Public relations methods and techniques; publicity and the mass media; preparation and production of special media.

**641 Reporting Public Affairs U G 5**  
(505) Su, A, W, Sp. 4 cl., 1 2-hr. lab.

*Prereq.: Pol. Sci. 205 or equiv. or permission of instructor.*

Reporting of court and governmental news; students attend trials, council sessions, visit government agencies as reporters and write news stories.

**642 The Press and Basic Issues U G 3**  
**of Our Times**

(608) Su, A, W, Sp. 1 cl., 1 2-hr. seminar.

*Prereq.: 641; or senior or graduate standing and permission of instructor.*

Distinguished faculty members and nationally known off-campus specialists in economics, history, journalism, law, political science, sociology, the sciences, will analyze issues in the news.

**643 The World Press U G 3-5**  
A, W, Sp. 3 cl., conf. arr.

*Prereq.: Jour. 4th yr. or graduate standing.*

An analysis of newspapers, news agencies, and broadcast news outlets and their roles in the political, economic and cultural development of their nation states.

**651 Mass Media Research U G 3**  
(824) W. 3 cl.

*Prereq.: Jour. 4th yr. or graduate standing.*

Types and methods of qualitative and quantitative research in the news media; analysis of methods and findings of typical studies.

**693 Individual Studies in Journalism U G 3-5**

(711) Su, A, W, Sp.

*Prereq.: Graduate standing or permission of Director of the School of Journalism.*

*Repeatable to a maximum of 15 cr. hrs.*

Students make extensive and significant studies in the field of Journalism.

- 693.01 News-Editorial
- 693.02 Radio and Television
- 693.03 Photojournalism
- 693.04 Magazines
- 693.05 Public Relations

**783 Honors Course U 3-5**  
(700) A, W, Sp.

*Prereq.: Senior standing, a grade of "A" in half of the major courses and a "B" in the remainder; permission of Director of the School of Journalism and the College Committee on Honors.*

*Repeatable to a maximum of 15 cr. hrs.*

A program for students who are candidates for a degree with distinction in Journalism.

**801 Seminar in Journalism G 3-5**  
(802) A, W, Sp.

Integrated reading and research in the fields of Journalism.

- a. Communication Research Methods.
- b. Theories of Mass Communication.

**802 Seminar in Journalism G 3-5**  
(803) A, W, Sp.

Integrated reading and research in the fields of Journalism.

- a. People, Society, and Mass Media.
- b. History of Mass Media.
- c. Legal Problems in Communication.
- d. The Literature of Journalism.

**803 Seminar in Journalism G 3-5**  
(804) A, W, Sp.

Integrated reading and research in the fields of Journalism.

- a. Problems in News-Editorial Journalism.
- b. Problems in Radio-Television Journalism.
- c. Problems in Photojournalism.
- d. Problems in Magazine Journalism.
- e. Problems in Public Relations.

**811 The Foreign Press G 5**  
A. 2 2½-hr. seminars.

*Prereq.: Graduate standing and permission of Director of the School of Journalism and fluency in at least one foreign language spoken in student's area of specialization.*

A comparative study of news systems in the foreign mass media in major world areas, showing them as products of specific political, economic and social philosophies.

**812 International Communications G 5**  
W. 2 2½-hr. seminars.

*Prereq.: Graduate standing and permission of Director of the School of Journalism and fluency in at least one foreign language spoken in student's area of specialization.*

Practices of journalism throughout the world and their role in hindering or advancing the international dissemination of news; manipulative communication between nations.

**813 Foreign Correspondence G 5**  
Sp. 2 2½-hr. seminars.

*Prereq.: Graduate standing and permission of Director of the School of Journalism and fluency in at least one foreign language spoken in student's area of specialization.*

Analysis of international developments as reported in world press media as to their origins, issues and likely evolution.

**899 Interdepartmental Seminar G 1-5**  
Su, A, W, Sp.

*(See under Interdepartmental Seminars.)*

**911 Foreign Internship G 5**  
A, W, Sp.

*Prereq.: 811, 812, 813, and permission of Director of the School of Journalism.*

*Repeatable to a maximum of 20 cr. hrs.*

Students will spend from two to four quarters abroad, associated with newspapers, news agencies, broadcast outlets, news magazines or universities.

**999 Research in Journalism G Arr.**  
(950) Su, A, W, Sp.

Research for thesis purposes only.



# Landscape Architecture

(School of Architecture)

Office: 100 Brown Hall, 190 West 17th Avenue

Associate Professor Tobey; Instructors and Lecturers.

## 200 Design of Gardens and Small Properties U 5

(550) Sp. 2 cl., 9 lab. hrs.

Landscape design for non-professional student emphasizing the design, construction, and planting of residential properties. *Tobey.*

## 201†\* History of Landscape Architecture U 3

(507) A. 3 cl.

A critical and historical analysis of the organization of outdoor space to meet varying needs of man from ancient times to the Renaissance. *Tobey.*

## 202†\* History of Landscape Architecture U 3

(508) W. 3 cl.

A critical and historical analysis of the organization of outdoor space from the Renaissance to the present; emphasis on the landscape architect's role in public service. *Tobey.*

## 203†\* History of Landscape Architecture U 3

(509) Sp. 3 cl.

The role of the landscape architect in developing the contemporary urban and natural environment. *Tobey.*

## 221\* Landscape Construction U 3

(587) 1 cl., 6 lab. hrs.

Prereq.: Land. Arch. 3rd yr. standing.

Interpretation of topography; problems in the development of ground forms, in road alignment, and construction. *Tobey.*

## 222\* Landscape Construction U 3

(588) W. 1 cl., 6 lab. hrs.

Prereq.: 221.

Continuation of 221. *Tobey.*

## 223\* Landscape Construction U 3

(589) Sp. 1 cl., 6 lab. hrs.

Prereq.: 222.

Continuation of 222. *Tobey.*

## 300 Outlines of Landscape Architecture U 3

W. 3 cl.

Prereq.: 4th yr. standing or permission of instructor.

Not open to candidates for the Bachelor of Land. Arch. degree.

Principles of site planning; methods of space organization using land forms, structural and plant materials; the relationship of natural and cultural characteristics of the environment. *Tobey.*

## 611 Intermediate Landscape Design U 6

(617) A. 1 cl., 15 lab. hrs.

Prereq.: Land. Arch. 4th yr. standing, Arch. 213.

An intermediate course in design with original problems involving outdoor space such as residential properties, working drawings, specifications and estimates. *Fife.*

## 612 Intermediate Landscape Design U 6

(618) W. 1 cl., 15 lab. hrs.

Prereq.: 611.

Continuation of 611. *Fife.*

## 613 Intermediate Landscape Design U 6

(619) Sp. 1 cl., 15 lab. hrs.

Prereq.: 612.

Continuation of 612. *Fife.*

## 621 Landscape Construction U 4

(687) A. 1 cl., 9 lab. hrs.

Prereq.: 223.

Study of the use of materials in the construction of structural elements in landscape design; preparation of working drawings, specifications and estimates. *Fife.*

## 622 Landscape Construction U 4

(688) W. 1 cl., 9 lab. hrs.

Prereq.: 621.

Continuation of 621. *Fife.*

## 623 Landscape Construction U 4

(689) Sp. 1 cl., 9 lab. hrs.

Prereq.: 622.

Continuation of 622. *Fife.*

## 661 Planting Design U 3

(627) A. 1 cl., 6 lab. hrs.

Prereq.: Land. Arch. 4th yr. standing, Hort. 433.

Not open to students with credit for (727).

A study of the use of plant material in landscape design with particular emphasis on composition and ecology. *Fife.*

## 662 Planting Design U 3

(628) W. 1 cl., 6 lab. hrs.

Prereq.: 661.

Not open to students with credit for (728).

Continuation of 661. *Fife.*

## 663 Planting Design U 3

(629) Sp. 1 cl., 6 lab. hrs.

Prereq.: 662.

Not open to students with credit for (729).

Continuation of 662. *Fife.*

## 693 Special Studies in Landscape Architecture U G 2-10

A, W, Sp.

Prereq.: Land. Arch. 4th or 5th yr. standing and permission of department.

Repeatable to a maximum of 30 cr. hrs.

For students in the Graduate School and those who wish to pursue special studies in landscape architecture.

## 711 Advanced Landscape Design U 6

(717) A. 1 cl., 15 lab. hrs.

Prereq.: Land. Arch. 5th yr. standing 613.

The integration of landscape construction and planting design in the development of problems in advanced landscape design. Individual research and criticism.

**712 Advanced Landscape Design U 6**  
 (718) W. 1 cl., 15 lab. hrs.  
 Prereq.: 711.  
 Continuation of 711.

**713 Advanced Landscape Design U 6**  
 (719) Sp. 1 cl., 15 lab. hrs.  
 Prereq.: 712.  
 Continuation of 712.

**721 Advanced Landscape Construction U 4**  
 (787) A. 1 cl., 9 lab. hrs.  
 Prereq.: 623.

Theory and methods, codes and specifications pertaining to advanced landscape construction, and preparation of working drawings. Tobey.

**722 Advanced Landscape Construction U 4**  
 (788) W. 1 cl., 9 lab. hrs.  
 Prereq.: 721.  
 Continuation of 721. Tobey.

**723 Advanced Landscape Construction U 4**  
 (789) Sp. 1 cl., 9 lab. hrs.  
 Prereq.: 722.  
 Continuation of 722. Tobey.

**750 Professional Practice U 3**  
 (759) A. 3 cl.  
 Prereq.: Land. Arch. 5th yr. standing, 623.

A study of professional practice including ethics, office organization and the preparation of contracts and specifications. Tobey.

## Latin

Office: 217 Derby Hall, 154 North Oval Drive

Associate Professor Morford (Acting Chairman), Professors Abbott Babcock, Forbes, W. R. Jones, and Titchener; Associate Professor Lenardon; Assistant Professors Barmann, Davis, Holsinger, and Schlam.

See also Classics.

Students with two years of high school Latin should enroll in Latin 103; with three years of high school Latin, including Cicero, in Latin 104; with three years of high school Latin, including Vergil, in 103 or 200. Latin majors should consult the departmental statement in the Catalog of the College of Humanities. Placement tests are required for all matriculating (including transfer) students who continue the study of Latin in the University in courses 050, 101, 102, 103, 104, 200, 201, and 202. A Placement Test will be given on the first day of the quarter. For details see the Departmental Secretary in Room 217, Derby Hall.

**050 Latin Review U 5**  
 (412) A. 5 cl.  
 Prereq.: Placement test.  
 Credit will not be counted toward graduation.

This course is intended for those students whose elementary Latin will begin with a review and continue as a preparation for Latin 103.

**101 Elementary Latin U 5**  
 (401) A. 5 cl.

Not for students who have studied Latin. Credit in 101 will be counted toward graduation only if followed by successful completion of 102, or if taken after successful completion of the fourth regular University course in another foreign language.

**102 Elementary Latin U 5**  
 (402) W. 5 cl.  
 Prereq.: 101.

**103 Cicero U 5**  
 (404) A, W, Sp. 5 cl.  
 Prereq.: 2 yrs. of secondary school Latin, or 102, or 050.

**104 Vergil U 5**  
 (405) Su, A, W, Sp. 5 cl.  
 Prereq.: 3 yrs. of secondary school Latin, or 103, or 112.

**112 Intensive Introduction U 5, 10, 15 to Latin**  
 (415) Su, 10 cl. and 10 or more hrs. of supervised study.

Full time of student and full fees required. Equiv. of 101, 102 and 103. Students with credit for 101 or the equiv. may not register for more than 10 cr. hrs. Students with credit for 101 and 102 or the equiv. may not register for more than 5 cr. hrs. Students with credit for 103 or the equiv. may not register for credit.

**200 Odes and Epodes of Horace U 5**  
 (406) A. 5 cl.  
 Prereq.: 104 or equiv. in secondary school Latin. Babcock.

**201 Livy's History of Rome U 5**  
 (407) W. 5 cl.  
 Prereq.: 104 or equiv. in secondary school Latin.

**202 Latin Comedy U 5**  
 (408) Sp. 5 cl.  
 Prereq.: 104 or equiv. in secondary school Latin. Selected plays of Plautus and Terence. Abbott.

**300\* Roman Historians U 3**  
 (501) A. 3 cl.  
 Prereq.: 3 courses at 200 level, or permission of instructor.  
 Selected readings from Sallust and Tacitus.

**301\* Lyric, Elegy, Epigram U 3**  
 (502) W. 3 cl.  
 Prereq.: 3 courses at 200 level, or permission of instructor.  
 Dilke.

**302\* Satire U 3**  
 Sp. 3 cl.  
 Prereq.: 3 courses at 200 level, or permission of instructor.  
 The development of Roman satire with emphasis on Horace and Juvenal. Davis.



- 303 Grammatical Review U 3  
(505) A. 3 cl.  
Prereq.: 2 courses at 200 level.
- 304† Latin Prose Composition U 1  
A. 1 cl.  
Prereq.: 2 courses at 200 level.
- 305† Latin Prose Composition U 1  
W. 1 cl.  
Prereq.: 303 and 2 courses at 200 level.
- 306† Latin Prose Composition U 1  
Sp. 1 cl.  
Prereq.: 305.
- 312 Intermediate Latin Prose Composition U 3  
(612) W. 3 cl.  
Prereq.: 4 courses more advanced than 104, one of which must be 303; and at least 2 courses from 304-305-306.
- 339†\* Lucretius' *De rerum natura* U 3  
A. 3 cl.  
Prereq.: 2 courses at 200 level, or permission of instructor.
- 340†\* Essays of Cicero U 3  
(540) W. 3 cl.  
Prereq.: 2 courses at 200 level, or permission of instructor.
- 344†\* Ovid U 3  
(544) Sp. 3 cl.  
Prereq.: 2 courses at 200 level, or permission of instructor.
- 603† Advanced Reading U G 3  
Su. (1st term). 3 cl.  
Prereq.: 4 courses more advanced than 104.
- 612 Advanced Latin Prose Composition U G 3  
Sp.  
Prereq.: 312 or equiv.  
Schlam.
- 615 Studies in Cicero U G 3  
Su, W. 3 cl.  
Prereq.: 4 courses more advanced than 104.  
Especially recommended for prospective secondary school teachers.  
Abbott.
- 616 Studies in Vergil U G 3  
A. 3 cl.  
Prereq.: 4 courses more advanced than 104.  
Especially recommended for prospective secondary school teachers.  
Davis.
- 617 Studies in Caesar U G 3  
Sp. 3 cl.  
Prereq.: 4 courses more advanced than 104.  
Especially recommended for prospective secondary school teachers.

- 625 Introduction to Medieval Latin U G 3  
W. 3 cl.

Prereq.: For departmental majors, 4 courses more advanced than 104; for others, 2 yrs. of secondary school Latin, or Latin 112, and a reading knowledge of a modern Romance Language or Ger.

Extensive reading in texts illustrating the history of Latin language and literature from the fourth through the thirteenth century. *Forbes*.

- 693 Individual Studies in Latin U G 1-6  
(631) A.

Prereq.: 4 courses more advanced than 104.  
Repeatable to a maximum of 15 cr. hrs.

Passages for reading and topics for investigation will be selected to meet the needs of individual students. *Schlam*.

#### GENERAL PREREQUISITES FOR COURSES NUMBERED 800 AND ABOVE

Prerequisites for admission to courses numbered 800 and above are graduate standing and permission of the Chairman.

- 800 Proseminar G 3  
A.

Required of all graduate students.  
Students may not receive credit for both Latin 800 and Greek 800.

An introduction to the materials and methods of research; the history of classical scholarship; individual assignments in bibliographical problems. *Forbes*.

- 802 Plautus and Terence G 4  
(702) Su.  
Abbott.

- 803† Horace G 4  
(703) W.

- 804† Tacitus G 4  
(704) Sp.

- 805† Seneca G 4  
(705) Sp.

- 806† Livy G 4  
(706) W.

- 807 Petronius and Apuleius G 4  
(707) Sp.  
Schlam.

- 808† Lucretius G 4  
A.

- 809† Lyric and Elegiac Poetry G 4  
A.

- 810 Sallust G 4  
A.  
Morford.

- 811 Juvenal G 4  
W.  
Dilke.

- 820 Introduction to Historical Latin Grammar G 3  
(720) Su.  
Abbott.

**827 Vulgar Latin G 3**(627) *Sp.**Prereq.: Graduate standing in Latin, or French 812, or equiv. linguistic basis.**Abbott.***850 History of Roman Literature G 4**(650) *A.*

Lectures and assigned reading in literary histories on the development of Roman literature; required and suggested passages for translation in each author studied; weekly reports. *Abbott.*

**851 History of Roman Literature G 4**(651) *Su, W.**Continuation of 850. Schlam.***852 History of Roman Literature G 4**(652) *Sp.**Continuation of 851. Dilke.***855\* Latin Epigraphy G 3***W.**Babcock.***856†\* Topography of Rome G 3***W.*

The topography and archaeology of ancient Rome as background to Roman history and literature. *Morford.*

**860† Palaeography G 3***A.**Abbott.***861† Textual Criticism I G 3**(800) *W.**Prereq.: 860.***862† Textual Criticism II G 3***Sp.**Prereq.: 861.***993 Individual Studies in Latin G 1-4**(701) *Sp.**Repeatable to a maximum of 20 cr. hrs.**Assigned reading and individual research. Dilke.***995 Seminar I G 5***A.**Repeatable to a maximum of 20 cr. hrs.**Credit in this course will be granted only with the completion of 996.*

The seminar will normally consist of a two-term sequence (A-W or W-Sp); an intensive study of an author or genre, e.g., Horace, Lucan, Cicero or satire. Topic for 1968-69: Cicero. *Abbott.*

**996 Seminar II G 5***W.**Prereq.: 995.**Repeatable to a maximum of 20 cr. hrs.**Continuation of 995.***999 Research G Arr.**(950) *A, W, Sp.**Research for thesis or dissertation purposes only.***Law***Office: 112 Law Building, 1659 North High Street*

**Professors** Rutledge (Dean), Bernstein, Burke, Caldwell, Callahan, Day, Fink, Herman, Lynn, Miller, Nordstrom, Pollack, Raskind, Schwarz, Slagle, Stanger, and Wills; **Associate Professors** Carpenter, Clovis, Kelman, Messerman, Rosenn, Simmons, and Sklar; **Assistant Professor** Rose; **Adjunct Professors** Christensen, Fisher, Glander, Johnston, Lawrence, Long, Lynn, Jr., Mayer, and Platt.

**500 Introduction to the Study of Law P 0**(090) *A.*

First-year students in the College of Law meet for the discussion of matters introductory to the study of law. *Rutledge.*

**501 Freshman Jury Service P 0**(091) *W.*

First-year law students are required to serve as jurors in the cases tried by seniors in the course in Trial Practice.

**502 Appellate Practice I P 0**(092) *W, Sp.*

Procedural and substantive aspects of appellate practice. The student prepares a brief and presents an oral argument on the basis of assigned research materials. *Herman and Moot Court Governing Board.*

**503 Contracts P 3**(500) *A, W, Sp. 3 cl.; 3-qr. sequence; credit given on completion of 9 cr. hrs.**Must enroll to a maximum of 9 cr. hrs.*

Remedies for breach; offer and acceptance; consideration; third party beneficiaries; assignment of rights and delegation of duties; conditions; impossibility and frustration; statute of frauds. *Caldwell and Stanger.*

**504 Torts P 2-3**(505) *A. 2 cl., W, Sp. 3 cl.; 3-qr. sequence; credit given on completion of 8 cr. hrs.**Must enroll to a maximum of 8 cr. hrs.*

Trespass to person and property; conversion; privileges; negligence; strict liability; nuisance; owners and occupiers of land; tort and contract; misrepresentation; defamation; right of privacy. *Miller and Carpenter.*

**505 Property I P 3**(510) *A, W. 3 cl.; 2-qr. sequence; credit given on completion of 6 cr. hrs.**Must enroll to a maximum of 6 cr. hrs.*

Incidents of ownership as applied to both real and personal property; possessory interests; concurrent interests; marital interests; future interests; contractual modification of these interests. *Callahan and Lynn.*

**506 Property II P 3**(511) *Sp. 3 cl.*

Acquisition and transfer of ownership; adverse possession; conveyances (deeds, mortgages, and leases); intestacy; wills; the recording systems; title registration. *Callahan and Lynn.*

**507 Civil Procedure P 3**(515) *A, W, Sp. 3 cl., 3 qtr. sequence; credit given on completion of 9 cr. hrs.**Must enroll to a maximum of 9 cr. hrs.*

Civil procedure in state and federal courts; development of equity; abolition of common law forms of action; merger of law and equity; jurisdiction; venue. *Fink and Wills.*



- 509 Criminal Law** P 4  
(520) Sp. 4 cl.  
Criminal laws as means of attaining socially desirable ends, stressing criminal behavior and handling of those who engage in that behavior. *Herman*.
- 510 Constitutional Law** P 3  
(550) A, W. 3 cl.; 2-qr. sequence; credit given on completion of 6 cr. hrs.  
Must enroll to a maximum of 6 cr. hrs.  
Functional study of the major substantive, methodological, and federalistic limitations upon governmental power obtaining under practice of judicial review. *Schwarz, Kelman, and Rosenn*.
- 511† Legal Research** P 2  
(570)  
Use of law books, both English and American; problems in the use of reports, statutes, selected annotated cases, texts, encyclopedia, digests, dictionaries, periodicals, and citation books.
- 600 Appellate Practice II** P 0  
(093) W, Sp.  
Preparation of a brief and presentation of an oral argument to a panel comprising members of law faculty, bench, and bar. *Herman and Moot Governing Board*.
- 601 Administrative Practice** P 4  
(530) W. 4 cl.  
Introduction to administrative process; reconciliation of the primary features of this process, with traditional politico-legal theories of separation of governmental powers. *Rutledge*.
- 602 Legal Process** P 4  
(545) A. 4 cl.  
Comparative evaluation of law-making by private parties, courts, legislatures, and administrative agencies; retroactivity; adherence to precedent; purposes of legislation; statutory interpretation. *Pollack*.
- 603 Evidence** P 3  
(555) A, W. 3 cl. or W, Sp. 3 cl.; 2-qr. sequence; credit given on completion of 6 cr. hrs.  
Must enroll to a maximum of 6 cr. hrs.  
Survey of rules of evidence; particularly demonstrative, testimonial, and circumstantial proof; qualification and examination of witnesses; privilege; relevancy; documents; hearsay rule and its exceptions. *Callahan*.
- 604 Pleading** P 3  
(565) A, Sp. 3 cl.  
Pleading under codes and Federal Rules of Civil Procedure. Requirements of pleadings; variance and amendments; defenses; denials and new matter; counterclaims; reply; demurrer; motions; interrogatories; joinder. *Wills*.
- 605 Negotiable Instruments Law** P 3  
(575) A, W. 3 cl.  
Types of commercial or negotiable paper; transfer; purchase and payment in due course, discount and security. *Cloviss*.
- 606 Federal Income Taxation** P 4  
(580) A, W. 4 cl.  
Study of the federal income tax; the concept of taxable gross income; deductions; methods for reporting income; capital gains and losses; treatment of corporations and shareholders, partnerships and trusts. *Raskind and Rose*.
- 607 Business Associations** P 4  
(585) A, W. 4 cl. or W, Sp. 4 cl.; 2-qr. sequence; credit given on completion of 8 cr. hrs.  
Must enroll to a maximum of 8 cr. hrs.  
Forms of business organization; planning corporate and other relationships for commercial and industrial purposes. *Rose*.
- 608 Trusts** P 4  
(615) A. 4 cl.  
The nature, creation, and elements of trusts; charitable, resulting, and constructive trusts; rights and liabilities of parties. *Lynn*.
- 609 Sales** P 3  
(630) W, Sp. 3 cl.  
A study of the Uniform Commercial Code and other statutes bearing on the sale of goods in the American market. *Nordstrom and Clovis*.
- 610 Sales Financing** P 3  
W. 3 cl.  
Prereq.: 609.  
With emphasis on the Uniform Commercial Code; financing sale of goods, intangibles, and proceeds; validity of and perfecting security interests; priorities and remedies. *Nordstrom*.
- 611 Administration of Criminal Justice** P 3  
(650) W, Sp. 3 cl.  
Processes of criminal justice from arrest to parole and probation; impact upon traditional practices and procedures resulting from major decisions of the Supreme Court of the United States. *Herman*.
- 612 Admiralty Law** P 3  
(652) Su. 3 cl.  
Admiralty jurisdiction; injuries to seamen and maritime workers; bills of lading; charter parties; salvage; general average; limitation of liability. *Stanger*.
- 613 Labor Law** P 4  
(610) W. 4 cl.  
Collective bargaining processes and duty to bargain; grievance arbitration; legal limitation on economic pressures, including interference with bargaining, strikes, picketing, and boycotts. *Bernstein*.
- 614 Comparative Law—Western Europe** P 3  
(658A) W. 3 cl.  
Substantive and procedural aspects of foreign legal systems in comparison with American law. *Day*.
- 615 Comparative Law—Latin America** P 3  
(658B) W, Sp. 3 cl.  
A comparative study of selected aspects of Latin-American and Anglo-American law. *Rosenn*.
- 616 Domestic Relations** P 3  
(660) A, W. 3 cl.  
Marriage, annulment, divorce, alimony, custody, intra-family relationships and relations of family members with others; integration data from other disciplines dealing with problems of family. *Rose*.

**617 Estate-Gift Taxation P 3**  
(661) *Sp. 3 cl.*

Federal gift and estate taxation; federal tax practice; interrelationships of death and gift taxes with federal income taxes. *Glander and Lynn.*

**618 Insurance P 3**  
(664) *A. 3 cl.*

Insurance law and practice with particular reference to fire, life, and automobile insurance; insurable interest; warranties and representations; waiver and estoppel; construction standard policies. *Callahan.*

**619 International Law P 3**  
(665) *A. Sp. 3 cl.*

Current problems in international law; international agreements; status of states and individuals; recognition; jurisdiction and procedural prerequisites to assertion of international claims. *Burke and Stanger.*

**620 Jurisprudence P 3**  
(666) *Sp. 3 cl.*

Jurisprudential thought as represented by general theories of or about law; assessment of leading jural doctrines; relationship to social control policy and to legal precepts. *Pollack.*

**621 Real Property Mortgages P 3**  
(670) *W. 3 cl.*

Mortgages and their use as a security device in real property transactions; common mortgage provisions; methods of enforcement of rights; "equitable" mortgages. *Simmons.*

**622 State and Local Taxation P 3**  
(673) *W. 3 cl.*

Legal problems arising in property, excise, income, and estate-inheritance taxation; tax administration and procedure. *Glander.*

**623 Federal Antitrust Law P 3**  
(678) *A. 3 cl.*

Prohibition of monopoly and restraint of trade by Sherman and Clayton Antitrust Acts, Federal Trade Commission Act and related statutes. *Day.*

**624 Taxation of Foreign Income P 3**  
(681) *A. 3 cl.*

Taxation of individuals and businesses operating in United States and abroad; jurisdiction, income source, foreign tax credit; treaty structure; special statutory entities for foreign trade. *Raskind.*

**625† Copyright Law P 3**  
(684) *A. 3 cl.*

Protection of literary, musical, artistic, and commercial property under common law; the federal copyright statute and related legislation. *Raskind.*

**626 Law and the United Nations P 3**  
*W. 3 cl.*

Establishment of the United Nations, conditions of access, and performance of various functions in the decision process by Security Council, General Assembly and International Court. *Stanger.*

**627 American Legal History P 3**  
*Sp. 3 cl.*

Studies in history of American law and exploration of relationship between development of the legal system and rise of an industrial society. *Simmons.*

**694 Special Group Studies P 3-6**  
*Su, A, W, Sp.*

*Repeatable to a maximum of 20 cr. hrs.*

Group study in selected areas of the law.

**701† Advanced Legal Research P 3**  
(653)

Research techniques providing basic experience in analyzing legal questions, using appropriate publications, and in reaching competent solutions to legal problems.

**702 Restitution P 4**  
(560) *Sp. 4 cl.*

Restitutionary remedies available for tort, misrepresentation, breach of contract, and for benefits conferred voluntarily, under duress or mistake, or in partial performance of contract. *Nordstrom.*

**703 Legal Clinic P 2**  
(600) *Su, A, W, Sp.*

*Three consecutive qtrs. for regular students Sp, A, W; for students accelerating and graduating in Dec., Sp, Su, A.*

*Must enroll to a maximum of 6 cr. hrs.*

Practical experience in handling actual cases for legal aid clients in conjunction with Legal Aid Society and under supervision of Director of Legal Clinic. *Carpenter and Daehler.*

**704 Trial Practice P 3**  
(605) *A, W.*

*Prereq.: 603, 604.*

State and federal procedures in civil or criminal causes; individual student practice in the trial to a jury of a civil or criminal case.

**705 Bankruptcy P 3**  
(655) *Sp. 3 cl.*

Methods used for the liquidation of debtors' estates, emphasizing first seven chapters of the Bankruptcy Act. *Caldwell.*

**706 Conflict of Laws P 4**  
(625) *Sp. 4 cl.*

Private law pertaining to jural relations containing one or more foreign elements; jurisdiction; foreign judgments; domicile; choice of law; torts; workmen's compensation acts; contracts; property; family law; decedents' estates. *Miller.*

**707 Administration of Decedents' Estates P 3**

(651) *W. 3 cl.*

Probate and contests of wills; jurisdiction; effect and necessity of administration; inventory and assets; contracts; sales and investments by personal representatives; claims; accounting and distribution. *Wills.*

**708 Arbitration Law and Practice P 3**  
(654) *Sp. 3 cl.*

Commercial and labor arbitration under Ohio and federal arbitration statutes; drafting arbitration clauses; conduct of proceedings; arbitrable issues; court enforcement or impeachment of awards. *Bernstein.*

**709 Corporate Organization and Finance P 3**

(659) *Sp. 3 cl.*

*Prereq.: 607.*

Practices used to finance corporations in the process of formation and those used, under varying conditions, after the corporation has had a business experience. *Clovis.*



**710 Federal Courts P 3**

(662) A. 3 cl.

The Federal judicial system; original jurisdiction; removal jurisdiction; venue; substantive law in federal courts; Federal Rules of Civil Procedure. *Fink*.

**711 Future Interests P 3**

(663) W. 3 cl.

Future interests in real and personal property; their classification, creation, and characteristics; class gifts; powers; rules against perpetuities. *Lynn*.

**712 Local Government Law P 3**

(667) A, W. 3 cl.

Types and organizations of local government units; intergovernmental relations; "home rule" power of Ohio municipalities; personnel; lawmaking; community planning; taxing and finance; contracts; legal liability. *Fink and Clovis*.

**713 Appellate Practice IV P 2**

(668) A. Sp.

Procedural and substantive aspects of appellate practice; perfection of appeals, preparation of briefs, and oral argument. *Herman*.

**714 Receivership and Reorganization P 2**

(671) Sp. 2 cl.

Prereq.: 607.

Equity receivership and corporate reorganization under Chapter X of the Bankruptcy Act; arrangements under Chapter XI of the Act.

**715 Advanced Federal Income Taxation P 3**

(674) W. 3 cl.

Prereq.: 606.

Advanced study of federal income taxation dealing with corporations and shareholders; partnerships, trusts and decedents' estates; practice and procedure. *Raskind*.

**716 Legal Problems of Foreign Trade P 3 and Investment**

(677) Sp. 3 cl.

Principal problems confronting Americans engaged in export and import trade and in doing business in Western Europe. *Day*.

**717 Federal Antitrust Law II P 3**

(679) W. 3 cl.

Prereq.: 603.

Continuation of Federal Antitrust Law; resale price maintenance under state fair trade laws; price and service discrimination under the Robinson-Patman Act. *Day*.

**718 Unfair Trade Practice P 3**

(680) A. 3 cl.

Unfair trade practices at common law and statutes, trademarks, trade names, misappropriation of ideas, false advertising, disparagement, resale price maintenance, and price discrimination. *Day*.

**719 Natural Resources P 4**

(682) Sp. 4 cl.

The nature and incidents of public and private interests in water, minerals, oil and gas; conveyancing of natural resources; and mineral, oil and gas leasing.

**720 Social Legislation P 3**

A. 3 cl.

Characteristics of statutory devices and their utility in effectuating social policy with emphasis upon acts and bills dealing with employment, but including related private plans and nonemployment programs. *Bernstein*.

**721 Urban Development P 3**

Sp. 3 cl.

The inner city and regional planning through zoning, condemnation, and other legal devices. *Fink*.

**722 The Federal System P 3**

W. 3 cl.

Allocation of authority between federal and state law and courts; Congressional power over the jurisdiction of courts; litigation involving the government or its agents. *Kelman*.

**723† Food and Drug Law P 3**

A. 3 cl.

Study of the development, administration and application of federal and state laws which regulate the manufacture, advertising and sale of food, drugs, and cosmetics.

**724† Comparative Criminal Law P 3 and Procedure**

Sp. 3 cl.

The criminal processes of representative Western European countries and of Japan; underlying assumptions; bases of penal liability; particular crimes and offenses; the inquisitorial process.

**725 Land Use Planning P 3**

W. 3 cl.

Techniques and consequences of limitations imposed upon use of private land by private covenant and public action; nuisance; covenants; eminent domain; zoning; subdivision; urban redevelopment. *Simmons*.

**793 Individual Studies P 1-6**

(693)

By special arrangement with the Dean's office, special problems or projects may be taken for credit under the supervision of members of the faculty. The credit granted varies in proportion to the magnitude of the project. In general, assignment of special problems will be limited to instances of exceptional student specialization, scheduling difficulties, and curricular irregularity.

**794 Law Journal P 3**

A, W, Sp.

Prereq.: Selection for Law Journal by Editors and Faculty.

Three or. hrs. counted toward graduation requirement, but no grade awarded.

Special studies covering diverse subjects of a legal nature participated in by the group selected for work on the Law Journal. *Carpenter*.

**795 Seminars in Legal Planning P 3**

(695) A, W, Sp. 3 cl.

Small-group training in the non-litigious functions of the practicing lawyer. Legal planning involves the resolving of fact situations and policy questions of means and ends, together with the effectuation of determinations made in connection therewith. Effectuation of policy decisions often involves the skills of negotiation and draftsmanship, as well as the technique of counseling and litigation. (Training in these latter two techniques is provided by Legal Clinic and Trial Practice, respectively.)

Following is a list from which Seminars in Legal Planning are drawn each year:

#### 795.01 Business Planning

Planning and drafting in field of business association; principally concerned with problems in general and limited partnerships, business trusts, and closely held corporations.

#### 795.02 Estate Planning

Planning an effective and economical gift distribution of property interests; consideration of techniques and restrictions suggested by law of property, wills, future interests, insurance, and taxation.

#### 795.03 Federal Tax Planning

*Prereq.: 606.*

Tax problems in business organizations, corporations, partnerships, and individual estates.

#### 795.04 General Legal Planning

Representative types of personal and business transactions which confront general practitioner, including contracts, partnership agreements, purchase agreements, sales agreements, deeds, wills, and trusts.

#### 795.05 Planning Through Negotiation

Planning negotiations; weighting legal, economic and social factors and use of techniques for attainment of objectives.

#### 795.06 Legislative Planning

Role of lawyer in advocating or opposing state and federal legislation; problems selected from past and current proposals before legislature.

#### 795.07 Planning Seminar in Law

*Repeatable to a maximum of 6 cr. hrs.*

Topics will change as specially scheduled in any quarter.

### 796 Seminars in Legal Research P 3

(606) A, W, Sp. 3 cl.

Individual training in original research, together with practice in expository legal writing. Subject matters are chosen for their capacity to provide training in the effective integration, with legal factors, of relevant social, economic, and other non-legal materials.

Following is a list from which Seminars in Legal Research are drawn each year:

#### 796.01 Antitrust Law and Economics

*Prereq.: 623.*

Evaluation of domestic antitrust law on the basis of current economic theories. (Inter-departmental seminar of the Department of Economics and the College of Law.)

#### 796.02 Antitrust Law and International Cartelization

*Prereq.: 623.*

Application of domestic antitrust policy to foreign operations of American corporations.

#### 796.03 Constitutional Problems

Advanced constitutional questions, involved in evolution of judicial review, intergovernmental relationships, protection of civil liberties, special problems under Ohio Constitution.

#### 796.04 Social Legislation

Federal wage and hour legislation, including: nature of employment relation; Fair Labor Standards Act; exemptions; compensable time; overtime on fluctuating workweek; child labor.

#### 796.05 Legal Problems of Foreign Trade and Investment

Problems encountered by American business enterprises engaged in foreign trade or investment.

#### 796.06 Legal Regulation of Business Practice

*Prereq.: 717.*

Regulation of competitive practices through legislative, administrative, and judicial action; equality of opportunity for small business; the Robinson-Patman Act.

#### 796.07 Legal Regulation of Devolution of Property

Socio-legal problems raised by devolution of wealth through such arrangements as public welfare programs, union welfare funds, insurance, foundations, charitable trusts, and pension trusts.

#### 796.08 Problems in the Law of Evidence

*Prereq.: 603.*

Advanced evidentiary questions involved in preparation for and trial of cases.

#### 796.09 Problems in Local Government Finance

Taxing by and financing of local governmental units, including power of and procedure for taxing, expending funds, financing improvements or services.

#### 796.10 Problems in Public Contracts

Types of government contracts; governmental authority to make contracts; limitations; advertising; bids and awards; formal requisites; standard clauses; contractors' bonds; performance and termination; liabilities.

#### 796.11 The Functional Approach to Law

Analysis of certain rules and situations to which they relate. Evaluation of rules and of assumptions of cause and effect made as to those rules.

#### 796.12 Legal and Economic Problems in State and Local Taxation

*Prereq.: 622.*

State taxation and intergovernmental tax relations in terms of law and fiscal economics. (Offered in cooperation with the Department of Economics.)

#### 796.13 Medical-Legal Problems

Conflict in concept between disciplines of law and medicine in matters of causation, injury, disability, prognosis, aggravation and re-injury related to their use in proof of such elements in litigation.

#### 796.14 The Individual and His Government

Government powers in democratic and totalitarian countries; relation of power to will of people; justice and fair hearing; personal freedoms surviving legislative and executive encroachments.

#### 796.15 Comparative Labor Law

*Prereq.: 613.*

Problems in American labor law viewed from the standpoint of both American and foreign law; collective bargaining; the use of economic force; internal and inter-union affairs.



**796.16 Right of Privacy**

Individual's interests in freedom from publicity and in physical seclusion; particularly legal response to social and technological changes which threaten these interests.

**796.17 Regulated Industries**

Principal regulatory agencies, both federal and state, with respect to licensing, rate-making, mergers, and general supervision of business practices.

**796.18 International Law of Sharable and Strategic Resources**

Processes of interaction, claim, and decision with respect to resources largely open to use by all states, including the ocean, "outer" space, air space, international rivers, canals, and polar areas.

**796.19 Selected Problems in Criminal Law and Procedure**

Purposes and effects of punishment; wiretapping; Uniform Arrest Act; right to counsel; habeas corpus and other postconviction remedies; treatment of criminal cases by mass communications.

**796.20 Research Seminar in Law**

*Repeatable to a maximum of 6 cr. hrs.*

Topics will change as specially scheduled in any quarter.

**796.21 Legal Controls of the Economy**

Study of State and Federal legislation affecting economic activity, including employment acts, antipoverty legislation, tariffs, financing laws, and legal basis of the Federal Reserve System.

**796.22 The Legal Implementation of Social Policy**

Interdisciplinary research and field work in institutions protective of children.

**796.23 Jurisprudential Approaches to Decision Making**

Considerations of conceptions of the role of law and lawyers in decision processes, with emphasis upon clarification of goal values, drawing on contemporary behavioral and communications sciences, in order to develop problem-solving tools and procedures.

**796.24 Syntactic Analysis and Other Tools in Statutory Drafting and Interpretation**

A study of the role of the legislature in authoritative law-making with emphasis upon the need for a contextual approach to problems of interpretation, and the consideration of modern syntactic analysis in statutory drafting and interpretation.

**796.25 Problems of Administrative Law**

*Prereq.: 601 recommended.*

An examination in detail of some of the more troublesome aspects of contemporary executive and administrative operations at federal and state levels.

**796.26 Jury Trial**

An examination of the role of juries including jury selection, standard instructions, special verdicts, law and fact, myths of jury trial and powers of juries vis-a-vis powers of administrative bodies.

**796.27 International Criminal Law**

Jurisdiction of tribunals over individuals committing acts considered criminal under international law but not local law; defenses urged; examination of piracy and war crimes.

**796.28 Socio-economic Environment of Law**

An examination of selected aspects of the socio-economic environment which affect the scope, content, and effectiveness of legal practice, rules and institutions.

**796.29 Advanced Problems in Torts**

Consideration of existing and proposed compensation systems for injuries sustained in automobile accidents; research for data in related disciplines; analysis of effects on compensation problems.

**796.30 Urban Studies**

Legal problems confronting inhabitants of major urban cities; effect on urban redevelopment; legal rights of services for poor.

**796.31 Housing and Urban Development**

Operation of and legal problems confronting governmental agencies concerned with housing and urban development in local communities.

**796.32 Insurance**

Organization and regulation of insurance carriers and marketing arrangements; rate-making; investment practices; reinsurance; solvency, rehabilitation and liquidation of companies.

## Linguistics

Office: 411 University Hall, 216 North Oval Drive.

**Professors** Lehiste (Chairman) and Fillmore; **Assistant Professors** Callaghan, Drachman, Landon, Langendoen, and Stampe.

See also the course listings in English, the foreign languages, Romance Linguistics and Linguistic Studies.

### 201 Introduction to Language U 5 (522) A, W, Sp. 5 cl.

*Not open to students with credit for Engl. (522).*

A general survey of language and languages, and the ways available to study them, with English as the focal language.

### 600 Phonetics U G 3 A. 5 cl.

*Prereq.: 601, concur. registration in 601, or an equiv. course in linguistics or phonetics.*

Principles of articulatory phonetics; practice in the production, recognition and transcription of sounds occurring in various languages of the world. *Lehiste.*

### 601 Introduction to Linguistics U G 5 Su, A, W. 5 cl.

A broad introduction to the categories and techniques of general linguistics; phonemic, morphemic, and syntactic analysis; applied, historical and comparative linguistics. *Fillmore.*

- 602 Syntactic Structures** U G 5  
W. 5 cl.  
Prereq.: 601.

The grammatical construction of a number of natural languages will be examined. Syntax, morphemics and their relation to linguistic meaning. *Langendoen*.

- 603 Phonological Structures** U G 5  
Sp. 5 cl.  
Prereq.: 601.

The phonological construction of natural languages will be examined. Phonemic theory and its role in the description of diverse languages.

- 611 Introduction to Historical Linguistics** U G 5  
W.  
Prereq.: 601.

Introduction to the methods and principles of historical linguistics. *Lehiste*.

- 650 Field Methods in Linguistics** U G 5  
Sp. 4 cl.  
Prereq.: 601.

Techniques for describing languages by the use of native informants. *Callaghan*.

- 671 Linguistics and Language Acquisition** U G 5  
W. 4 cl.  
Prereq.: 601.

The contribution of linguistic theory to the study of the acquisition of grammatical, semantic, and phonological skills. *Stamps*.

- 672 Languages of the World** U G 3-5  
A, W, Sp. 3-5 cl.  
Prereq.: 601.  
Repeatable to a maximum of 30 cr. hrs.

Under direction of the linguistics staff, informant and laboratory techniques will be employed to teach a selected language not otherwise offered at the University.

- 673 History of Linguistics** U G 5  
A. 5 cl.  
Prereq.: 601.

Ancient, Medieval, Renaissance and Enlightenment views on language; origins of historical and comparative linguistics; development of twentieth-century schools of linguistic theory. *Langendoen*.

- 679 The Classification of Linguistic Structures** U G 5  
A. 5 cl.  
Prereq.: 601.

An examination of the schemes for classifying linguistic structures, phenotypic (typological) and genotypic (genetic or genealogical), and some of the content of each type. *London*.

- 681 Algebraic Linguistics** U G 5  
W. 5 cl.  
Prereq.: 601 and permission of instructor.

Formal properties of grammar and automata; relations between linear, context-free and context-sensitive grammars and finite, pushdown-storage and linear-bounded automata; properties of transformational grammars. *Langendoen*.

- 685 Contrastive Structures** U G 5  
W. 5 cl.  
Prereq.: 601.

An examination of the notion of linguistic structure and of methods for quantifying differences between particular linguistic structures. *London*.

- 693 Individual Studies in Linguistics** U G 1-5  
(701) Su, A, W, Sp.

- 694 Special Group Studies in Linguistics** U G 1-5  
Su, A, W, Sp.  
Prereq.: 601.

Repeatable to a maximum of 30 cr. hrs.

Study of topics not regularly scheduled for seminars in linguistics, under the direction of a staff member.

- 695 Seminar in Anthropological Linguistics** U G 5  
A.

Prereq.: Anthro. 430 or permission of instructor.

Repeatable to a maximum of 30 cr. hrs.

- 795 Seminar in Linguistics** U G 3-5  
(720) A, W, Sp. 3-5 cl.  
Prereq.: 602 and 603 or permission of instructor.

Repeatable to a maximum of 30 cr. hrs.

Topics include the history of linguistics, grammatical theory, mathematical models in linguistics, history or structure of individual languages.

- 801 Historical Linguistics I** G 5  
(761) W. 5 cl.  
Prereq.: 601.

An introduction to the methods, conventions, and literature of comparative-historical linguistics with primary attention to the comparisons and reconstructions of phonological systems. *Callaghan*.

- 802 Historical Linguistics II** G 5  
(762) Sp. 5 cl.  
Prereq.: 601.

Advanced work in the comparison and reconstruction of morphological, phonological, and syntactic systems. Detailed examination of some of the results of past and current scholarship. *Callaghan*.

- 803 Topics in Indo-European** G 5  
A, W, Sp. 5 cl.  
Prereq.: 602.

Repeatable to a maximum of 30 cr. hrs.

Study of various Indo-European languages and language families and exploration in depth of specific problems in Indo-European grammar.

- 811 Transformational Analysis** G 5  
(771) Sp. 5 cl.  
Prereq.: 602 and 603 or permission of instructor.

The theory of grammatical transformations: its formal properties, its justifications, its adequacy as a device for explicating grammatical notions in natural languages. *Langendoen*.



- 812 Structural Semantics** G 5  
A. 3 cl.  
Prereq.: 811.

Accounts of semantic judgments in natural languages, especially within the theory of generative grammar; the role of syntax in semantics; and theories of translation. Fillmore.

- 820 Seminar in Syntax** G 5  
Sp.  
Prereq.: 795 or permission of instructor.  
Repeatable to a maximum of 15 cr. hrs.

Advanced topics in syntactic analysis. Langendoen.

- 821 Seminar in Phonology** G 5  
W.  
Prereq.: 795 or permission of instructor.  
Repeatable to a maximum of 15 cr. hrs.

Advanced topics in phonological analysis. Stampe.

- 822 Seminar in Historical Linguistics** G 5  
A.  
Prereq.: 802 or permission of instructor.  
Repeatable to a maximum of 15 cr. hrs.

Advanced topics in methods and principles of diachronic analysis.

- 850 Seminar in Applied Linguistics** G 5  
Su.  
Prereq.: 685, Engl. 778, Speech 778, or permission of instructor.

An exploration of the practical applications of linguistic research. London.

- 999 Research in Linguistics** G Arr.  
(950) Su, A, W, Sp.  
Research for thesis purposes only.

## Mathematics

Office: 150 Mathematics Building, 231 West 18th Avenue

Professors Ross (Chairman), Bajsanski, Bambah, Bojanic, Drobot, Fisher, Helsel, House (Adjunct), Lenz (Visiting), Levine, Mickie, Miller, Ray-Chaudhuri, Reeves, Reichelderfer, Roquette, Rustagi, Saltzer, Shapiro, Sucheston, Whitney, Woods, and Zassenhaus (Research); Associate Professors Carroll, Colson, Cronheim, Dean, Jones (Emeritus), Kappe, Leicht, Margaris, Meyers, Purtz, Riner, Sehgal, Tull, Willke, Yaqub, and Zilber; Assistant Professors Ahlswede, Allaire, Baumann, Beatty (Emeritus), Beckwith, Brown, Bumcrot, Buoncristiani, Caris (Emeritus), Davis, Demana, DeVore (Visiting), Eustice, Ferrar, Hsia, Hughes, Johnson, Kappe, Kempfert (Visiting), Klimko (Visiting), Lee, J. P. Leitzel, J. R. Leitzel, Mackie, Madan, McWorter, Pepe, Pressman, Ralley, Rau, Rickard (Emeritus), Riedl, Rizvi, Santos (Visiting), J. T. Scheick, S. H. Scheick (Visiting), Sehgal, Singh, Srivastava, Troy, Walum, and Zimmer.

- 101 Basic Mathematics** U 5  
(412) Su, A, Sp. 5 cl.  
Prereq.: Placement on basis of OSU Math. Test.

Programmed instruction used to improve algebraic computation; lectures contain selected advanced topics.

- 105 Principles of Mathematics** U 3  
(410) Su, W, Sp. 3 cl.  
Prereq.: Elem. Educ. standing and Math. 101 or satisfactory score on OSU Math. Test.

The course develops basic ideas on arithmetic, algebra, geometry through the study of the structure of selected mathematical systems.

- 108 Introduction to Mathematics I** U 5  
A. 5 cl.  
Prereq.: Open to freshmen who qualify for Level I in English Placement, but who do not qualify for Math. 151 or higher on the basis of the OSU Math. test. Exceptions may be made by special permission of the Department of Mathematics.

This course is designed to provide an introduction to the basic ideas of mathematics from the students in the humanities, life and social sciences.

- 109 Introduction to Mathematics II** U 5  
(413) W. 5 cl.  
Prereq.: 108.

- 110 Introduction to Mathematics III** U 5  
(414) Sp. 5 cl.  
Prereq.: 109.

- 116 Mathematics for the Behavioral, Economic, and Social Sciences I** U 5  
(416) Su, A, W, Sp. 5 cl.

Prereq.: 101 or satisfactory score on OSU Math. Test.

Not open for credit for students having credit for 121 or 150 or Math. courses having these as prerequisites.

The sequence 116, 117 treats topics in mathematics with applications to the non-physical sciences. Topics will include analytic geometry, calculus, linear algebra, linear programming and graph theory; applications.

- 117 Mathematics for the Behavioral, Economic, and Social Sciences II** U 5  
(417) Su, A, W, Sp. 5 cl.  
Prereq.: 116.

A continuation of 116.

- 121 Mathematics for the Business, Social, and Biological Sciences I** U 5  
Su, A, W, Sp. 5 cl.

Prereq.: Satisfactory score on OSU Placement Test or at least a "C" in Math. 101.

Not open for credit for students having credit for 116 or 150 or Math. courses having these as prereqs.

The sequence 121, 122, 123 is designed to introduce the student to calculus, probability, and statistics.

- 122 Mathematics for the Business, Social, and Biological Sciences II** U 5  
Su, A, W, Sp. 5 cl.  
Prereq.: 121.

Continuation of 121.

- 123 Mathematics for the Business, Social, and Biological Sciences III** U 5  
A, W, Sp. 5 cl.  
Prereq.: 122.

Continuation of 122.

**125 Elementary Mathematical Statistics U 5**

(435) Sp. 5 cl.

Prereq.: 116 or 150.

Elementary principles of probability and introduction to the use of the binominal and normal distributions.

**150 Algebra and Trigonometry U 5**

(439) Su, A, W, Sp. 5 cl.

Prereq.: 101 or satisfactory score on OSU Math. Test.

Not open for credit for students having credit for 116 or 121 or Math. courses having these as prereqs.

Inequalities, functions, graphs, exponential and logarithmic and trigonometric functions and their graphs, complex numbers, inverse functions.

**151 Calculus and Analytic Geometry U 5**

(440) Su, A, W, Sp. 5 cl.

Prereq.: 150 or Level I Placement on OSU Math. Test.

Not open to students with credit for (418).

Lines, slopes, derivatives, limits differentiation, rules, mean-value theorem, applications of derivatives to: curve sketching, maxima and minima, linear motion, related rates, approximations, conics.

**152 Calculus and Analytic Geometry U 5**

(441) Su, A, W, Sp. 5 cl.

Prereq.: 151.

Not open to students with credit for (536).

Continuation of 151. Approximating areas, the integral, integration, formulas, applications of integration, inverse functions, logarithmic and exponential functions, hyperbolic functions, integration techniques.

**153 Calculus and Analytic Geometry U 5**

(542) Su, A, W, Sp. 5 cl.

Prereq.: 152.

Continuation of 152. Polar coordinates, rotation of axes, vectors, velocity, acceleration, space vectors and three dimensional analytic, geometry, cylindrical and spherical coordinates; linear systems, matrices, characteristic values.

**163 Calculus U 5**

Sp.

Prereq.: 152 and permission of department.

163, 264, 265 substitute for 153, 254, 550, 551. A rigorous treatment of vector spaces and limits, continuity and differentiability of multi-variable functions.

**190 Elementary Analysis I U 5**

A. 5 cl.

Prereq.: Permission of department.

Special course sequence for superior students. This sequence substitutes for Mathematics 151, 152, 153, 550.

**191 Elementary Analysis II U 5**

W. 5 cl.

Prereq.: Permission of department.

Continuation of 190.

**192 Elementary Analysis III U 5**

Sp. 5 cl.

Prereq.: Permission of department.

Continuation of 191.

**205 Applications of Mathematics U 5**

(545) A, W. 5 cl.

Prereq.: Ed. standing and 421 or 152.

Approximately half of the course will be devoted to a study of probability and statistics; other topics will be chosen to illustrate applications of mathematics.

**221 Mathematics for the Business, Social, and Biological Sciences IV U 5**

A.

Prereq.: 123.

Continuation of 123.

**254 Calculus and Analytic Geometry U 5**

(543) Su, A, W, Sp. 5 cl.

Prereq.: 153.

Continuation of 153. Partial derivatives, multiple integrals, infinite series.

**255 Differential Equations and Their Applications U 5**

(544) Su, A, W, Sp. 5 cl.

Prereq.: (538) or 254.

Not open to students with credit for (608) or 556.

Ordinary differential equations with particular emphasis on linear differential equations, systems of differential equations, applications to electrical, mechanical, and chemical systems.

**264 Calculus U 5**

A.

Prereq.: 163.

A rigorous treatment of differentials, Jacobians, line integrals, multiple integrals, and Fubini's theorem.

**265 Calculus U 5**

W.

Prereq.: 264.

Stokes' theorem, Green's theorem, changes of variables, implicit and inverse function theorems.

**290 Linear Algebra U 5**

A, Sp. 5 cl.

Prereq.: 192.

Vector spaces, linear transformations, quality, multilinear functions, determinants, exterior products, matrices, eigenvalues, eigen vectors canonical forms, linear manifolds, quadratic forms, inverse product spaces.

**291 Functions of Several Variables I U 5**

W. 5 cl.

Prereq.: 290 and permission of department.

Topology of n-space; convexity, differentiation, maxima and minima, inverse and implicit function theorems.

**292 Functions of Several Variables II U 5**

Sp. 5 cl.

Prereq.: 291 and permission of department.

Lebesgue integral; manifolds and forms in n-space; integration on manifolds; Stokes and divergence theorem.

**294 Special Topics in Mathematics U 2-5**

Su, A, W, Sp.

Prereq.: Permission of instructor.

Repeatable to a maximum of 10 cr. hrs.

This course is intended to give groups of able students an opportunity to pursue special studies not otherwise offered.



- 421† Introduction to Statistics U 3**  
 (546) A, Sp. 2 cl., 1 2-hr. lab.  
 Prereq.: (538) or 254.

Combinatorial probability, fundamental concepts of probability distributions, sample statistics, estimation and testing hypotheses, roots of statistical theory.

- 425 Probability and Statistics I U 5**  
 A, W. 4 cl., 1 lab.  
 Prereq.: 254.

Elements of discrete and continuous probability; introduction to estimation and testing of hypotheses.

- 426 Probability and Statistics II U 5**  
 W, Sp. 4 cl., 1 lab.  
 Prereq.: 425.

Continuation of 425.

- 501 Fundamentals of Mathematics I U G 4**  
 (635) A. 4 cl.  
 Prereq.: Permission of instructor.

Not open for graduate credit to majors in Math.

This sequence emphasizes the fundamentals of mathematics and is designed for advanced students from areas not requiring intensive mathematical training. Topics include algebra, the number system, induction, theory of equations, progressions, combinations, and permutations, probability, determinants, and matrices, inequalities, analytic geometry, differential and integral calculus.

- 502 Fundamentals of Mathematics II U G 4**  
 (636) W. 4 cl.  
 Prereq.: 501.

A continuation of 501.

- 503 Fundamentals of Mathematics III U G 4**  
 (637) Sp. 4 cl.  
 Prereq.: 502.

A continuation of 502.

- 504 History of Mathematics U G 5**  
 (631) Su, A, W. 5 cl.  
 Prereq.: Ed. standing and 152 or permission of instructor.

The development of mathematics from its primitive origins to its present form. Topics include: development of arithmetic, algebra, geometry, trigonometry, and calculus.

- 505 Fundamental Ideas in Mathematics I U G 5**  
 (651) A, W. 5 cl.  
 Prereq.: Ed. standing and 152 or permission of instructor.

Basic ideas concerning: number systems, sets, fields, axiom systems, finite geometries, projective geometry.

- 506 Fundamental Ideas in Mathematics II U G 5**  
 (652) W, Sp. 5 cl.  
 Prereq.: 505.

Continuation of 505.

- 507 Advanced Geometry I U G 5**  
 (621) A, W. 5 cl.  
 Prereq.: (536) or (541) or 152.

Advanced topics from Euclidean Geometry.

- 512 Fourier Series and Boundary Value Problems for Engineers U G 3**  
 (609) A, W. 3 cl.  
 Prereq.: (608) or 255 or 556.

Not open to students with credit for 412 or 557.

Fourier series, applications of Fourier series to the solution of boundary value problems involving partial differential equations, Bessel functions.

- 513 Vector Analysis for Engineers U G 3**  
 (622) A, W. 3 cl.  
 Prereq.: (608) or 255 or 556.

Not open to students with credit for 413 or 551.

Vector algebra, vector operators, line integrals, vector integral theorems, curvilinear coordinates; applications.

- 514 Complex Variables for Engineers U G 3**  
 (624) W, Sp. 3 cl.  
 Prereq.: 513 or Elec. E. 510 or concur. Elec. E. 510.

Not open to students with credit for 414.

Introduction to complex variables, analytic functions, complex integral theorems, power series, residues, conformal mapping.

- 520 Mathematical Statistics I U G 5**  
 (672) Su, A. 5 cl.  
 Prereq.: (548) or 254.

Permutations, combinations, probability; discrete and continuous distributions; Binomial, Poisson, normal chi-square, t, F distributions; limit theorems of probability.

- 521 Mathematical Statistics II U G 5**  
 (673) Su, W. 5 cl.  
 Prereq.: 520.

Testing simple hypotheses; applications of t test, chi-square tests, F tests, nonparametric test; confidence intervals.

- 522 Discrete Probability U G 3**  
 (674) Sp. 3 cl.  
 Prereq.: 520.

Discrete probability spaces, random walk, Markov chains, stochastic processes, strong laws of probability.

- 528 Statistical Theory in Medical Research I U G 3**  
 A. 3 cl.  
 Prereq.: Permission of instructor, special graduate students in medical sciences.

Fundamental concepts of probability, random variables, statistical inference, regression and correlation analysis. Topics selected from bioassay, life table techniques, computers in medicine.

- 529 Statistical Theory in Medical Research II U G 3**  
 W. 3 cl.  
 Prereq.: 515.

Continuation of 515.

**545 Mathematical Logic I U G 5**(665) *W. 5 cl.**Prereq.: (537) or 153 or permission of instructor.*

A first course in the study of formal logical systems and their applications to the foundations of mathematics. Topics include: definition of mathematical proof; number theory, set theory, and analysis formalized within the predicate calculus; theorems of Gödel and Church; recursive function theory and idealized digital computers.

**546 Mathematical Logic II U G 5**(666) *Sp. 5 cl.**Prereq.: 545.*

A continuation of 545.

**550 Advanced Calculus I U G 5**(601) *Su, A, W, Sp. 5 cl.**Prereq.: (538) or 254.*

A rigorous presentation of limits, derivatives, mean value theorems, definite integrals, sequences, and series.

**551 Advanced Calculus II U G 5**(661) *Su, A, W, Sp. 5 cl.**Prereq.: 550.**Not open to students with credit for 513.*

A continuation of 550 for functions of several variables and vector analysis.

**552 Introduction to the Theory of Functions of a Complex Variable I U G 5**(607) *Su, W. 5 cl.**Prereq.: 550.**Not open to students with credit for 414.*

Topics discussed include power series expansions, the formula of Cauchy, residues, conformal mappings, and elementary functions in the complex domain.

**553 Introduction to the Theory of Functions of a Complex Variable II U G 5***Sp. 5 cl.**Prereq.: 552.*

A continuation of 552.

**556 Differential Equations U G 5**(611) *A, Sp. 5 cl.**Prereq.: (538) or 254.**Not open to students with credit for 255 or (608).*

Equations of first and second orders, linear equations, series solutions, approximate solutions, systems of ordinary equations; Legendre and Bessel equations.

**557 Fourier Series and Boundary Value Problems U G 5**(626) *Sp. 5 cl.**Prereq.: (608) or 556 or 255.**Not open to students with credit for 412, 512, or 602.*

Expansion of function in Fourier series and in series of Legendre polynomials or Bessel functions; solution of boundary value problems from physics.

**560 Topology U G 5**(643) *Sp. 5 cl.**Prereq.: 254*

Sets and functions, metric spaces, completeness, Baire's Theorem, continuous mappings, Euclidean spaces, compactness, connectedness, topological spaces.

**570 Elementary Modern Algebra U G 5**(641) *W, Sp. 5 cl.**Prereq.: 571 and 573.*

An introduction to abstract algebra with topics from elementary ring, field, and group theories. Special emphasis on ring of integers, congruences, polynomial domains, permutation groups.

**571 Matrices and Determinants U G 5**(670) *Su, W, Sp. 5 cl.**Prereq.: (537) or 153.*

The fundamentals of matrix theory with emphasis on determinants, systems of linear equations, vector spaces rank, characteristic polynomial, similarity and congruence transformations.

**573 Elementary Number Theory U G 5**(680) *A, W. 5 cl.**Prereq.: (537) or 153.*

Utilization of concrete examples to introduce concepts of modern algebra; prime numbers, congruences, Diophantine equations, elementary combinatorial analysis.

**574 Geometry U G 5***Sp. 5 cl.**Prereq.: 570, 571.*

Euclidean and non-Euclidean geometry, emphasizing algebraic connections; Affine and projective planes, duality. Topics from: geometry of groups, finite planes, Hilbert's postulates, n-dimensional spaces, continuous geometry.

**590 Algebraic Structures I U G 5***A.**Prereq.: 290.*

The sequence 590, 591, substitutes for 570, 573. Integers, congruence relations, structure preserving maps, topics from groups, rings, modules, vector spaces, fields.

**591 Algebraic Structures II U G 5***W.**Prereq.: 590.*

Continuation of 590.

**593 Individual Studies in Mathematics U G 2-5***A, W, Sp.**Prereq.: Permission of instructor.**Repeatable to a maximum of 20 cr. hrs.***594 Special Topics in Mathematics U G 2-5***Su, A, W, Sp.**Prereq.: Permission of instructor.**Repeatable to a maximum of 20 cr. hrs.***601 Mathematical Methods in Science I U G 5**(723) *A. 5 cl.*

*Prereq.: 15 cr. hrs. of Math. at the 400-500 level or permission of instructor. The recommended preliminary courses are 550, 551, 552.*

Theory of determinants and matrices, real quadratic and Hermitian forms, groups and vector spaces, applications to physics and engineering.



**602 Mathematical Methods in Science II U G 5**

(721) W. 5 cl.

Prereq.: 601.

Linear differential equations, solutions about singular points; Fourier series; Sturm-Liouville problems; Bessel functions and Legendre polynomials; boundary value problems associated with Laplace's equation.

**603 Stability Problems in Differential Equations U G 3**

(730) Sp. 3 cl.

Prereq.: (608) or 255 or 556.

Existence and uniqueness of solutions; initial conditions; periodic solutions; Kryloff-Bogoljuboff method; graphical and numerical methods; applications to vibrational problems, relaxation theory, and nonlinear mechanics.

**608 Advanced Geometry II U G 5**

Sp. 5 cl.

Prereq.: 507 and permission of instructor.

Continuation of 507 and selected topics.

**611 Principles of Mathematics for Science and Mathematics Teachers U G 5**

(642) Su. 5 cl.

Prereq.: Permission of instructor.

(NSF students only).

Introduction to modern mathematics, sets, functions, topology.

**612 Modern Geometry for High School Teachers U G 5**

(645) Su. 5 cl.

(NSF students only).

Coordinate geometry use of vectors in geometry, matrices and coordinate transformations, matrix-vector operations, characteristic values, diagonalization of quadratic forms.

**613 Modern Algebra for High School Teachers U G 5**

(646) Su. 5 cl.

(NSF students only).

A basic modern algebra course for teachers of algebra. Topics will include: groups, rings, integral domains, fields, an axiomatic approach to high school algebra.

**614 Analysis for High School Teachers U G 5**

(647) Su. 5 cl.

(NSF students only).

Extension of the rational number concept to the real number concept, functions, limit concept, sequences, continuous functions, derivative, integral series, applications of the calculus.

**620 Applied Stochastic Processes U G 3**

Sp. 3 cl.

Prereq.: 520.

Normal processes and covariance stationary processes, counting processes and Poisson processes, renewal processes.

**621 Mathematical Statistics III U G 3**

A, Sp. 3 cl.

Prereq.: 521.

Continuation of 520, 521 covering topics from regression analysis and analysis of variance, i.e., linear models.

**622 Survey and Sampling Theory U G 3**

Su. 3 cl.

Prereq.: 621 or permission of instructor.

Sampling from finite populations, multistage sampling, stratification, regression and ratio estimates, non-sampling errors, applications to large scale sample surveys.

**629 Statistics Laboratory U G 1-5**

Su, A, W, Sp.

Prereq.: Permission of instructor.

Repeatable to a maximum of 10 cr. hrs.

Experience is given the student in working with real data through association with current projects in the Statistics Laboratory.

**651 Introduction to Real Analysis I U G 5**

A. 5 cl.

Prereq.: Permission of instructor.

Real numbers, infinite sequences and series.

**652 Introduction to Real Analysis II U G 5**

W. 5 cl.

Prereq.: 651.

Classes of functions, Riemann-Stieltjes integral.

**653 Introduction to Real Analysis III U G 5**

Sp. 5 cl.

Prereq.: 652.

Measurable sets and functions, elementary theory of the Lebesgue integral.

**662 Calculus of Variations U G 5**

A. 5 cl.

Prereq.: 555 or 556; 551.

Variation of a functional; Euler-Lagrange equations; Hamilton-Jacobi theory; second variation Theory of field; Noether theorem; direct methods; applications to geometry and physics.

**670 Algebra I U G 5**

A. 5 cl.

Prereq.: Permission of instructor.

Elementary number theory, polynomials, Euclidean domains; elementary theory of groups and fields, vector spaces and modules over a ring, linear transformations, determinants, normal form of matrices, quadratic forms.

**671 Algebra II U G 5**

W. 5 cl.

Prereq.: 670.

Continuation of 670.

**672 Algebra III U G 5**

Sp. 5 cl.

Prereq.: 671.

Continuation of 671.

**674 Topics in Combinatorial Mathematics U G 5**

A. 5 cl.

Prereq.: 675 or permission of instructor.

Permutations, combinations, partitions, latin squares, finite geometries.

**680 Projective Geometry U G 5**

(748) Su, A, W, Sp.

Prereq.: 672.

The combinatorial and algebraic aspects of projective geometry, including non-Desarguesian and finite projective planes, coordination, the theory of collineations, incidence matrices, Latin squares.

**693 Individual Studies in Mathematics U G 1-5**

(700) Su, A, W, Sp.

Individual conferences, assigned readings, and reports on minor investigations.

**694 Special Topics in Mathematics U G 2-5**

(698) Su, A, W, Sp.

Prereq.: Permission of instructor.

Repeatable to a maximum of 80 cr. hrs.

This course is intended to give groups of students an opportunity to pursue special studies not otherwise offered.

**701 Mathematical Methods in Science III U G 5**

(722) Sp. 5 cl.

Prereq.: 571 or 601 or permission of instructor.

Introduction to tensor analysis with applications to geometry. Elements of the calculus of variations with applications to physical problems.

**702 Integral Equations and Eigenvalue Problems I U G 3**

(725) A. 3 cl.

Prereq.: 601 and 608.

Orthogonal functions, linear, integral equations of first and second kinds, relations to ordinary differential equations, Volterra's equation, boundary value problems, practical methods of solution.

**703 Integral Equations and Eigenvalue Problems II U G 3**

(726) W. 3 cl.

Prereq.: 702.

Distribution of eigenvalues, self-adjointness, definiteness, Green's functions, minimal properties, approximation of eigenvalues, eigenfunction expansions, Ritz method, iteration method, matrix eigenvalue problems, finite differences.

**704+\* Operational Calculus U G 3**

(727) Sp. 3 cl.

Prereq.: 601 and 608.

Laplace transformation in real domain, applications in physics and engineering; differential equations; Laplace transformation in complex domain, application to partial differential equations; Fourier transform, applications.

**705 Special Functions U G 3**

(728) W. 3 cl.

Prereq.: 601 and 608.

Power series developments, asymptotic expansion, gamma functions, cylindrical functions, spherical harmonics, orthogonal polynomials, hypergeometric functions, theta functions, elliptic functions and integrals, numerical techniques.

**706 Applied Complex Analysis U G 5**

(729) Sp. 5 cl.

Prereq.: 414, or 558 and 556. Students are urged to fulfill the prereq. with 558.

Basic facts of complex analysis; conformal mapping properties of elementary functions, Schwartz—Christoffel formula; distortion theorems; uniformization; applications to electromagnetic fields, fluid dynamics, heat flow.

**720 Analysis of Variance U G 3**

A. 3 cl.

Prereq.: 550, 571, 521.

General linear hypothesis, random components, mixed models.

**721 Design and Analysis of Experiments U G 3**

(733) W. 3 cl.

Prereq.: 780.

Experimental designs, efficiency, Latin squares, balanced blocks, power functions, planned experiments.

**722 Theory of Probability U G 3**

(731) A. 3 cl.

Prereq.: 653.

General probability distributions, Stieltjes integral, characteristic functions, limit theorems.

**725 Sequential Procedures in Statistics U G 3**

Sp. 3 cl.

Prereq.: 581, 580.

Sequential tests of hypotheses and their operating characteristics, Wald's SPRT tests, sequential estimation, sequential designs and multiple decision procedures.

**726 Multivariate Analysis I U G 3**

Sp. 3 cl.

Prereq.: 571, 581, and 551 or 653.

Multivariate normal distribution, Wishart distribution, Hotelling's  $T^2$  multivariate analysis of variance, multiple correlation, roots of determinant equations, discriminant functions, applications.

**727+ Multivariate Analysis II U G 3**

W. 3 cl.

Prereq.: 726.

Continuation of 726.

**728 Order Statistics U G 3**

A. 3 cl.

Prereq.: 581, 551 or 653.

Exact and asymptotic distributions and moments of order statistics, estimating parameters and testing hypotheses using order statistics, confidence intervals and tolerance regions.

**729 Nonparametric Statistics U G 3**

W. 3 cl.

Prereq.: 788.

Theory of testing hypotheses, single, double and k sample problems, rank orders, measures of correlation, large sample properties.

**741 Mathematical Foundations of the Design and Use of Automatic Systems I U G 3**

(795) A. 3 cl.

Prereq.: Graduate standing or permission of instructor.

Boolean operations; reduction of systems of Boolean functions; turing machines and general recursive functions; application to problems relating to design and use of automatic systems.



**742 Mathematical Foundations of the Design and Use of Automatic Systems II** U G 3

(794) W. 3 cl.  
Prereq.: 741 and graduate standing or permission of instructor.  
Continuation of 741.

**743 Mathematical Foundations of the Design and Use of Automatic Systems III** U G 3

(795) Sp. 3 cl.  
Prereq.: 742 and graduate standing or permission of instructor.  
Continuation of 742.

**749† Advanced Mathematical Logic I** U G 5  
A. 5 cl.  
Prereq.: 645 or 670.

A study of the axiomatic method; the classical theorems of Skolem and Gödel; some modern results about model-theories and the theory of definability; axiomatic number-theory and set-theory.

**750 Real Analysis I** U G 5  
(701) Su, A. 5 cl.  
Prereq.: 653.

Relative extremes in partial orders; additive and countable additive set functions; extensions of set functions; integration Differentiation, applicators.

**751 Real Analysis II** U G 5  
(702) W. 5 cl.  
Prereq.: 750.

Continuation of 750.

**752 Real Analysis III** U G 5  
Sp. 5 cl.  
Prereq.: 751.

Continuation of 751.

**753 Introduction to Complex Analysis I** U G 5  
(801) A. 5 cl.  
Prereq.: 653.

Families of holomorphic and meromorphic functions, geometrical methods of the theory of functions, conformal transformations; including the Cauchy integral theorem, Runge's theorem, Riemann mapping theorem.

**754 Introduction to Complex Analysis II** U G 5  
(802) W. 5 cl.  
Prereq.: 753.

Analytic continuation, general analytic functions, algebraic, entire, elliptic, the gamma and zeta function, Dirichlet's series, Picard's theorems, Mittag-Leffler's theorem, Stirling's formula.

**755 Introduction to Point Set Topology I** U G 5  
(741) Su, A. 5 cl.  
Prereq.: 653.

Topographical spaces, convergence; metric, complete, compact, connected, uniform and function spaces.

**756 Introduction to Point Set Topology II** U G 5  
(742) W. 5 cl.  
Prereq.: 755.

Continuation of 755.

**760†\* Ordinary Differential Equations I** U G 3  
A. 3 cl.  
Prereq.: 571, 653.

Introduction to theory of linear and non-linear ordinary differential equations; equations with singular points; stability theory, boundary value problems.

**761†\* Ordinary Differential Equations II** U G 3  
W. 3 cl.  
Prereq.: 760.

Continuation of 760.

**762†\* Ordinary Differential Equations III** U G 3  
Sp. 3 cl.  
Prereq.: 761.

Continuation of 761.

**763\* Partial Differential Equations and Their Applications I** U G 3  
(807) A. 3 cl.  
Prereq.: 653.

First order partial differential equations, theory of characteristics; second order partial differential equations; elliptic, parabolic, hyperbolic equations; standard method of solution, Greens function; integral equations.

**764\* Partial Differential Equations and Their Applications II** U G 3  
(808) W. 3 cl.  
Prereq.: 763.

Continuation of 763.

**767 Introduction to the Theory of Approximation I** U G 5  
(704) A. 5 cl.  
Prereq.: 653.

Approximation by polynomials and trigonometric polynomials, Chebeshev's theory of best approximation and its generalizations; interpolation processes and mechanical quadrature; orthogonal polynomials and elements of harmonic analysis.

**768 Introduction to the Theory of Approximation II** U G 5  
(705) W. 5 cl.  
Prereq.: 650, 767.

A continuation of 767.

**770 Higher Algebra I** U G 5  
(761) A. 5 cl.  
Prereq.: 672.

Fields, extensions, normal extensions, algebraic closure, Galois group of a polynomial, theory of equations, topics in ideal and valuation theory, rings with minimum conditions crossed products.

- 771 Higher Algebra II** U G 5  
(762) W. 5 cl.  
Prereq.: 770.  
A continuation of 770.
- 772 Higher Algebra III** U G 5  
(763) Sp. 5 cl.  
Prereq.: 771.  
A continuation of 771.
- 775 Combinatorial Analysis and Graph Theory I** U G 5  
A.  
Prereq.: 672.  
Ramsey's theorem, systems of distinct representatives, zero-one matrices, orthogonal Latin squares, combinatorial designs, and difference sets.
- 776 Combinatorial Analysis and Graph Theory II** U G 5  
W.  
Prereq.: 775.  
Möbius inversion principle, Polya theory of counting, planar graphs, connectivity, coloring min cut max flow, integer programming and combinatorial extrema, graphs and adjacency matrices.
- 777 Combinatorial Analysis and Graph Theory III** U G 5  
Sp.  
Prereq.: 776.  
Totally unimodular matrices, matroids, combinatorial problems of coding theory, probabilistic fluctuation theory, and other selected topics.
- 779 Experimental Number Theory** U G 2-5  
A, W, Sp. 3 cl., 2 labs.  
Prereq.: Permission of instructor.  
Topics from elementary and/or algebraic number theory; number theoretical explorations utilizing high-speed digital computers.
- 780 Number Theory I** U G 5  
A. 3 lec., 2 seminars.  
Prereq.: 672.  
Diophantine equations, Congruences, p-adic numbers, algebraic number theory, class numbers, distribution of primes, continued fractions.
- 781 Number Theory II** U G 5  
W. 3 lec., 2 seminars.  
Prereq.: 780.  
Continuation of 780.
- 782 Number Theory III** U G 5  
Sp. 3 lec., 2 seminars.  
Prereq.: 781.  
Continuation of 781.
- 794 Advanced Studies in Mathematics** U G 2-5  
(798) Su, A, W, Sp.  
Prereq.: Permission of instructor.  
Repeatable to a maximum of 20 cr. hrs.  
When students' need is sufficient, the Department will offer under this number a course on some phase of mathematics not covered in its regular offerings.
- 822 Advanced Design of Experiments** G 3  
Sp.  
Prereq.: 721.  
Partially balanced designs, factorial experiments, confounding and factorial replications, response surface designs.
- 824 Statistical Inference I** G 3  
(734) W. 5 cl.  
Prereq.: 722 and 521.  
Classical and modern statistical inference from advanced point of view, Estimation, principles of maximum likelihood, Asymptotic theory; completeness, sufficiency and invariance.
- 825 Statistical Inference II** G 3  
Sp. 3 cl.  
Prereq.: 824.
- 826 Statistical Decision Theory I** G 3  
Sp. 3 cl.  
Prereq.: 825.  
Introduction to the theory of games, statistical games, admissibility and completeness, complete class theorem, principles of sufficiency and invariance, sequential games.
- 827 Statistical Decision Theory II** G 3  
Su, W. 3 cl.  
Prereq.: 826.  
Continuation of 826.
- 828† Statistical Multiple Decision Procedures** G 3  
Sp. 3 cl.  
Prereq.: Permission of instructor.  
Comparisons with a standard, the ranking of parameters different formulations, some multivariate and non-parametric problems of ranking and selection.
- 830 Advanced Probability I** G 3  
(855) A. 3 cl.  
Prereq.: 751 and permission of instructor.  
Selected topics from foundations, martingales stochastic processes.
- 831 Advanced Probability II** G 3  
(856) W. 3 cl.  
Prereq.: 830.  
Continuation of 830.
- 832 Advanced Probability III** G 3  
(857) Sp. 3 cl.  
Prereq.: 831.  
Continuation of 831.
- 844 Advanced Mathematical Logic II** G 5  
W. 5 cl.  
Prereq.: 749.  
Continuation of 749.
- 846 Topics in Discrete Mathematics** G 2-5  
W. 2-5 cl.  
Prereq.: Permission of instructor.  
Repeatable to a maximum of 20 cr. hrs.



**847 Transfinite Arithmetic I** G 5  
(830) A.  
Prereq.: 750 and 770.

Axiomatic Set Theory. Ordinal numbers and Transfinite functions. Polynomial representation. Normal forms. Number classes. Inequalities for cardinal numbers. Consequences of the continuum hypothesis. Inaccessible numbers.

**848 Transfinite Arithmetic II** G 5  
(831) W.  
Prereq.: 847.  
Continuation of 847.

**851 Differential Geometry I** G 3  
(841) A. 3 cl.  
Prereq.: 751, 756, 771.  
Curves, surfaces, fundamental forms, tensors and connections.

**852 Differential Geometry II** G 3  
(842) W. 3 cl.  
Prereq.: 851.  
Continuation of 851.

**854 Differentiable Manifolds and Lie Groups I** G 5  
W. 5 cl.  
Prereq.: 751, 756, 771.  
Tensors, exterior differential forms, connections. Lie Groups.

**855 Differentiable Manifolds and Lie Groups II** G 5  
Sp. 5 cl.  
Prereq.: 854.  
Continuation of 854.

**857 Introduction to Functional Analysis I** G 3  
(750) A. 3 cl.  
Prereq.: 552, 751 or equiv.  
Linear topological spaces, normed spaces, Hilbert spaces, convex sets, integration of vector-valued functions.

**858 Introduction to Functional Analysis II** G 3  
(751) W. 3 cl.  
Prereq.: 857.  
Continuation of 857.

**859 Introduction to Functional Analysis III** G 3  
(821) Sp. 3 cl.  
Prereq.: 857, 858.  
Banach Algebras, spectral theory, harmonic analysis, fixed-point theorems; applications to analysis.

**860 Algebraic Topology I** G 3  
A. 3 cl.  
Prereq.: 751, 756, 771.  
Metric space topology, complexes in Euclidean spaces, singular homology theory.

**861 Algebraic Topology II** G 3  
W. 3 cl.  
Prereq.: 860.  
Continuation of 860.

**862 Algebraic Topology III** G 3  
Sp. 3 cl.  
Prereq.: 861.  
Continuation of 860, 861.

**863 Potential Theory I** G 3  
(817) A.  
Prereq.: 552 and permission of instructor.  
Newtonian Potentials, Boundary Value Problems. Logarithmic Potential, Elliptic Partial Differential Equations.

**864 Potential Theory II** G 3  
(818) W.  
Prereq.: 863.  
Continuation of 863.

**865 Topics in Mathematical Physics** G 2-5  
Su, A. 2-5 cl.  
Prereq.: Permission of instructor.  
Repeatable to a maximum of 20 cr. hrs.

**866 Mathematical Problems in Engineering** G 2-5  
Sp. 2-5 cl.  
Prereq.: Permission of instructor.  
Repeatable to a maximum of 20 cr. hrs.

**867 Dimension Theory** G 5  
(815) Sp. 5 cl.  
Prereq.: 751, 756, and 771.  
Dimension in separable metric spaces with application to Euclidean spaces; covering theorems, imbedding theorems, and approximation theorems; relationships between the concept of dimension and measure.

**869 Mathematical Theory of Communication and Control** G 2-5  
Sp. 2-5 cl.  
Prereq.: Permission of instructor.  
Repeatable to a maximum of 20 cr. hrs.

**873 Group Theory I** G 5  
(871) A. 5 cl.  
Prereq.: 771.

Properties of groups, extensions, transfer, generators and defining relations.

**874 Group Theory II** G 5  
(872) W. 5 cl.  
Prereq.: 873.  
Continuation of 873.

**876 Analytic Number Theory** G 5  
(873) A, W. 5 cl.  
Prereq.: Permission of instructor.  
The distribution of prime numbers; Waring's problems, and selected topics.

- 877 Theory of Algebraic Numbers** G 5  
(880) W, Sp. 5 cl.  
*Prereq.: Permission of instructor.*  
Ideals in algebraic number fields, unique decomposition theorem, different, discriminant, ideal classes, applications of Galois theory and analytical methods.
- 925 Advanced Topics in Mathematical Statistics I** G 3  
(849) Sp. 3 cl.  
*Prereq.: Permission of instructor.*  
Topics to be taken from the following: multivariate analysis, stochastic processes, analysis of variance, components of variance models, advanced test design.
- 926 Advanced Topics in Mathematical Statistics II** G 3  
(850) Su. 3 cl.  
*Prereq.: 925.*  
Continuation of 925.
- 931 Ergodic Theory I** G 3  
A. 3 cl.  
*Prereq.: 751.*  
Measurable transformations, mixing and ergodicity, existence of invariant measures, contraction operations on function spaces, ergodic theorems.
- 932 Ergodic Theory II** G 3  
W. 3 cl.  
*Prereq.: 931.*  
Continuation of 931.
- 933 Sums of Independent Random Variables I** G 3  
A. 3 cl.  
*Prereq.: 830 or 722 and 751.*  
Limit theorems for sums of independent random variables, infinitely divisible distributions, stable laws.
- 934 Sums of Independent Random Variables II** G 3  
W. 3 cl.  
*Prereq.: 933.*  
Continuation of 933.
- 935 Random Walks and Brownian Motion I** G 3  
W. 3 cl.  
*Prereq.: 830 or 722 and 751.*  
Recurrence, periodicity, hitting probabilities, potential theory, recurrent and transient random walks, Brownian motion.
- 936 Random Walks and Brownian Motion II** G 3  
Sp. 3 cl.  
*Prereq.: 935.*  
Continuation of 935.
- 937 Semi Groups and Markov Processes I** G 3  
W. 3 cl.  
*Prereq.: 751.*  
Sample functions and semi groups generated by Markov processes; general potential theory including Green's Function and generalized capacity.
- 938 Semi Groups and Markov Processes II** G 3  
Sp. 3 cl.  
*Prereq.: 937.*  
Continuation of 937.
- 949 Seminar in Logic** G 2-5  
Su, A, W, Sp.  
*Prereq.: Permission of instructor.*  
Repeatable to a maximum of 20 cr. hrs.
- 950 Topics in Real Analysis** G 2-5  
Su, A, W, Sp.  
*Prereq.: Permission of instructor.*  
Repeatable to a maximum of 20 cr. hrs.
- 951 Topics in Complex Analysis** G 2-5  
Su, A, W, Sp. 2-5 cl.  
*Prereq.: 754.*
- 953 Topics in Topology** G 2-5  
Su, A, W, Sp.  
*Prereq.: Permission of instructor.*  
Repeatable to a maximum of 20 cr. hrs.
- 954 Topics in Algebraic Topology** G 2-5  
Su, A, W, Sp.  
*Prereq.: Permission of instructor.*  
Repeatable to a maximum of 20 cr. hrs.
- 957 Topics in Differential Geometry** G 2-5  
Su, A, W, Sp.  
*Prereq.: Permission of instructor.*  
Repeatable to a maximum of 20 cr. hrs.
- 959 Measure and Integration I** G 4  
(826) A. 4 cl.  
*Prereq.: 751.*  
Topics will be chosen from current research papers.
- 960 Measure and Integration II** G 4  
(827) W. 4 cl.  
*Prereq.: 959.*  
Continuation of 959.
- 961 Topics in Functional Analysis** G 2-5  
Su, A, W, Sp. 2-5 cl.  
*Prereq.: Permission of instructor.*  
Topics to be chosen from current research papers.
- 970 Representation Theory I** G 5  
A. 5 cl.  
*Prereq.: Permission of instructor.*  
Topics to be chosen from current research papers.
- 971 Representation Theory II** G 5  
W. 5 cl.  
*Prereq.: 970.*  
Continuation of 970.
- 972 Combinatorial Analysis** G 5  
(864) Sp. 5 cl.  
*Prereq.: 771.*  
Topics selected from current research papers.



- 973 Homological Algebra I** G 5  
A. 5 cl.  
Prereq.: 772.  
Introduction into the basic concepts of homological algebra.
- 974 Homological Algebra II** G 5  
W. 5 cl.  
Prereq.: 973 or permission of instructor.  
Continuation of 973.
- 975 Topics in Geometry** G 5  
Su, A, W, Sp. 5 cl.  
Prereq.: Permission of instructor.  
Topics to be chosen from current research papers.
- 978 Theory of Rings** G 5  
(819) Su, A, W, Sp. 5 cl.  
Prereq.: 772.  
Topics selected from current research papers.
- 979 Theory of Matrices** G 5  
(862) Su, A, W, Sp. 5 cl.  
Prereq.: 771.  
Topics selected from current research papers.
- 980 Lattice Theory** G 5  
(865) Su, A, W, Sp. 5 cl.  
Prereq.: 771.  
Topics selected from current research papers.
- 981 Topics in the Theory of Groups** G 2-5  
Su, A, W, Sp.  
Prereq.: Permission of instructor.  
Repeatable to a maximum of 20 cr. hrs.
- 982 Topics in Algebra** G 5  
Su, A, W, Sp. 5 cl.  
Prereq.: Permission of instructor.  
Topics selected from current research papers.
- 983 Topics in Number Theory** G 2-5  
Su, A, W, Sp.  
Prereq.: Permission of instructor.  
Repeatable to a maximum of 20 cr. hrs.
- 984 Topics in Algebraic Geometry** G 5  
Su, A, W, Sp. 5 cl.  
Prereq.: Permission of instructor.  
Topics to be chosen from current research papers.
- 985 Seminar in Group Theory** G 2-5  
Su, A, W, Sp.  
Prereq.: Permission of instructor.  
Repeatable to a maximum of 20 cr. hrs.
- 986 Seminar on Algebra** G 2-5  
Su, A, W, Sp.  
Prereq.: Permission of instructor.  
Repeatable to a maximum of 20 cr. hrs.
- 987 Seminar on Commutative Algebra** G 2-5  
Su, A, W, Sp.  
Prereq.: Permission of instructor.  
Repeatable to a maximum of 20 cr. hrs.
- 988 Seminar on Number Theory** G 2-5  
Su, A, W, Sp.  
Prereq.: Permission of instructor.  
Repeatable to a maximum of 20 cr. hrs.
- 989 Seminar on Geometry of Numbers** G 2-5  
Su, A, W, Sp.  
Prereq.: Permission of instructor.  
Repeatable to a maximum of 20 cr. hrs.
- 990 Seminar on Geometry** G 2-5  
Su, A, W, Sp.  
Prereq.: Permission of instructor.  
Repeatable to a maximum of 20 cr. hrs.
- 996 Seminar in Analysis** G 2-5  
Su, A, W, Sp.  
Prereq.: Permission of instructor.  
Repeatable to a maximum of 20 cr. hrs.
- 997 Seminar in Topology** G 2-5  
Su, A, W, Sp.  
Prereq.: Permission of instructor.  
Repeatable to a maximum of 20 cr. hrs.
- 998 Seminar in Applied Mathematics** G 2-5  
Su, A, W, Sp.  
Prereq.: Permission of instructor.  
Repeatable to a maximum of 20 cr. hrs.
- 999 Research** G 2-15  
(950) Su, A, W, Sp.  
Repeatable.  
Research for thesis or dissertation purposes only.

## Mechanical Engineering

Office: 2075 Robinson Laboratory, 206 West 18th Avenue South

Professors Marco (Chairman), Beitler (Emeritus), Bolz, Bucher (Emeritus), Doebelin, Glower, Han, Hornung, Jones, Marquis (Emeritus), Moffat (Emeritus), Norman (Emeritus), Starkey, Stinson (Emeritus), Velkoff, and Zimmerman; Associate Professors Engelman, McLarnan, Sepsy, and Smith; Assistant Professors Beans, Bridge, Buxton, Davidson, Foster, Johnson, Jordan, Lynch, Moran, and Yu.

- 500 Thermodynamics** U G 5  
(601) W, Sp. 5 cl.  
Prereq.: Math. 254 and Physics 232.  
Not open to students majoring in Mech. E.  
A study of the principles of thermodynamics as an engineering science. Marco.
- 501 Thermodynamics** U G 5  
(607) A, W. 5 cl.  
Prereq.: Professional division standing.  
Not open to students with credit for (600)-(604)-(605).  
A study of basic engineering thermodynamics. Marco.

- 502 Thermodynamics** U G 5  
(608) W, Sp. 5 cl.  
Prereq.: 501, or Chem. 531 and Physics 541.  
Continuation of 501.
- 503 Fluid Dynamics** U G 5  
(609) A, Sp. 5 cl.  
Prereq.: 502.  
A basic study of fluid dynamics. Han.
- 505 Hydraulic Laboratory** U 1  
(672) A. 1 3-hr. lab.  
Concur.: Civil E. 512.  
A study of incompressible fluid flow through various primary elements and through a centrifugal pump. Buzton.
- 510 Heat Transfer** U G 4  
(610) A, W. 4 cl.  
Prereq.: (605) or 503.  
Not open to students with credit for (611).  
A study of the fundamental laws of heat conduction, radiation, and convection, including an introduction to transient conduction. Jordan.
- 511 Heat Transfer and Fluid Flow** U 5  
(621) A, Sp. 5 cl.  
Prereq.: 500.  
Not open to students majoring in Mech. E.  
A study of the fundamental principles of heat transfer and fluid flow in the design of heat exchange equipment with applications to electrical machinery and apparatus. Jordan.
- 520 Principles of Heat Generation** U G 3  
(614) A, W. 3 cl.  
Prereq.: 510 or (611).  
Not open to students with credit for (606).  
A quantitative and qualitative study of heat generation including molecular and nuclear processes. Marco.
- 550 Machine Design** U G 5  
(736) W, Sp. 5 cl.  
Prereq.: Engr. Mech. 420.  
Not open to students majoring in Mech. E.  
A study of the application of the general principles and empiricisms of mechanics of solids to the creative design of mechanical equipment. Starkey.
- 551 Kinematics of Machines** U G 5  
(615) A, Sp. 5 cl.  
Prereq.: Professional division standing.  
A study of displacements, velocities, and accelerations of machine members using graphical and numerical methods of analysis. McLarnan.
- 552 Dynamics of Machinery** U G 4  
(616) A, W. 4 cl.  
Prereq.: 551, Engr. Mech. 410, and Math. 255 or (608).  
Not open to students with credit for (620).  
A study of the interrelationships among forces, motions, and masses as related to rigid or elastic machine members, including force analysis, vibration, impact, and balancing. Starkey.
- 588 Professional Aspects of Mechanical Engineering** U 1  
(770) A. 1 cl.  
Prereq.: Mech. E. Professional Division 3rd yr. standing.  
A study of the code of ethics, licensing law, responsibilities to professional societies, and the relationships to labor and management of the professional engineer. Marco.
- 612† Principles of Heat Exchangers** U G 3  
(724) A, W. 3 cl.  
Prereq.: 510.  
Not for graduate credit to students majoring in Mech. E.  
A study of principles of heat and mass transfer as applied to the design of heat exchangers. Jones.
- 613 Cryogenic Systems** U G 3  
(756) Sp. 3 cl.  
Prereq.: 500 or (605) or 503, and 510 and 511.  
Study of low-temperature processes and equipment; physical properties at low temperatures; practical application of low-temperature techniques and processes in engineering systems. Marco.
- 621 Principles of Energy Conversion U G 3 in Positive Displacement Machinery**  
(722) A, Sp. 3 cl.  
Prereq.: (605) or 503, and (606) or 520.  
Not for graduate credit to students majoring in Mech. E. Not open to students with credit for (625).  
A study of the principles of energy conversion and transfer, performance and physical characteristics of power-absorbing, power-generating, and power-transmitting positive displacement machinery. Jones.
- 624 Principles of Energy Conversion U G 3 in Turbomachinery**  
(721) W, Sp. 3 cl.  
Prereq.: (605) or 503.  
Not for graduate credit to students majoring in Mech. E. Not open to students with credit for (720).  
A study of the principles of energy conversion and transfer, performance and physical characteristics of power-absorbing, power-generating, and power-transmitting turbomachinery. Jones.
- 625 Vapor Power Cycles** U G 3  
(745) A. 3 cl.  
Prereq.: (605) or 503, 510, and 520.  
A descriptive and analytical study of elementary and advanced power plant cycles. Buzton.
- 640 Principles of Environmental Control** U G 3  
(723) A, Sp. 3 cl.  
Prereq.: 510 or (611), and 552 or (620).  
Not for graduate credit to students majoring in Mech. E. Not open to students with credit for 741.  
A study of the principles of the control of environments for human occupation, occupation by other living beings, the operation of mechanical and electrical equipment, and for the storage and processing of materials. Sepsy.



**661 Principles of Mechanical Design U G 4**  
(767) A, W. 4 cl.

Prereq.: 450 or Met. E. 451, Engr. Mech. 521 or 522, Indust. E. 401 and Math. 421.

Not open for graduate credit to students majoring in Mech. E. Not open to students with credit for (727)-(728)-(744), (727)-(728)-(743), or (727)-(733)-(743).

A study of the application of the general principles and empiricisms of mechanics of solids to the creative design of mechanical equipment. *Starkey*.

**662 Principles of Mechanical Design U G 4**  
(768) W, Sp. 4 cl.

Prereq.: 552 or (620) and 661.

Not open for graduate credit to students majoring in Mech. E. Not open to students with credit for (727)-(728)-(744), (727)-(728)-(743), or (727)-(733)-(743).

Continuation of 661. *Starkey*.

**663 Principles of Mechanical Design U G 4**  
(769) A, Sp. 4 cl.

Prereq.: 552 or (620) and 661.

Continuation of 661.

**670 Mechanical Engineering Measurements U G 3**

(778) A, W. 1 cl., 1 4-hr. lab.

Prereq.: (605) or 503, 510 or (611), and 552 or (620).

Not open for graduate credit to students majoring in Mech. E. Not open to students with credit for (664) and (665).

A theoretical and experimental study of the principles of operation and performance characteristics of measuring instruments used in mechanical engineering. *Doebelin*.

**693 Special Problems in Mechanical Engineering U G 2-10**

(799) A, W, Sp.

Prereq.: Permission of instructor.

Repeatable to a maximum of 24 cr. hrs. with a maximum of 10 cr. hrs. in any one subdivision.

This course is intended to give the advanced student opportunity to pursue special studies not otherwise offered. Work undertaken will be selected from automotive and internal combustion machinery, combustion and fuels, heat transfer, heating, ventilating, and air conditioning, industrial hydraulics, machine design, refrigeration, steam power plants, and thermodynamics.

**720 Internal Combustion Engines U G 3**  
(703) A. 3 cl.

Prereq.: (625), or 520 and 621.

A study of combustion chambers, valve mechanisms, and the dynamic balance of internal combustion engines. *Engelman*.

**721 Internal Combustion Engines U G 3**  
(704) W. 3 cl.

Prereq.: (625), or 520 and 621.

Force analysis as related to the design of engine components such as pistons, bearings, valve springs, and crankshafts. *Engelman*.

**722 Diesel Engines U G 3**  
(725) Sp. 3 cl.

Prereq.: (625), or 520 and 621.

An advanced study of Diesel engine operation, and economics. *Engelman*.

**724 Gas Turbine Power Plants U G 3**  
(726) W. 3 cl.

Prereq.: (606) or 520, and (720) or 624.

A study of the principles, performance, and design of gas turbine power plants. *Engelman*.

**726 Nuclear Power Plants U G 3**  
(755) Sp. 3 cl.

Prereq.: 510 or (611), and (727) or 550 or 661, and Physics 472 or 571.

A study of the thermal and mechanical design aspects of nuclear power plants and processes. *Jones*.

**741 Heating, Ventilating, and Air Conditioning U G 4**

(710) A. 4 cl.

Prereq.: 510 or (611), and 640.

A study of practices, components and systems for conventional and unique air conditioning equipment used to control the environment for human occupancy, storage and industrial processes. *Sepsy*.

**742 Refrigeration and Air Conditioning U G 3**

(716) W. 3 cl.

Prereq.: 510 or (611), and 640.

A study of fundamentals, processes and equipment associated with refrigeration systems using vapor compression, air cycle, absorption, magnetic and thermoelectric cooling. *Sepsy*.

**761 Mechanical Engineering Design I U G 3**

(771) A, W. 3 2-hr. lab.

Prereq.: 624, 621, 640, 662, 663.

Not open for graduate credit to students majoring in Mech. E.

The methodology of intermediate design and practice in the design of a specific system which may utilize principles of any or all mechanical engineering disciplines. *Foster*.

**762 Mechanical Engineering Design II U G 3**

(772) W, Sp. 3 2-hr. lab.

Prereq.: 761.

Not open for graduate credit to students majoring in Mech. E.

The methodology and practice in the preliminary design of an optimum system to fulfill a specified need utilizing principles of several mechanical engineering disciplines. *Foster*.

**763 Mechanical Engineering Design III U G 3**

(773) A, Sp. 3 2-hr. lab.

Prereq.: 762.

Not open for graduate credit to students majoring in Mech. E.

Continuation of 762.

**770 Advanced Mechanical Engineering Instrumentation U G 4**

(761) W. 3 cl., 1 2-hr. lab.

Prereq.: (664) or 670, or equiv.

A theoretical and experimental study of measurement instrumentation; emphasis on both principles of operation and analysis and design techniques for measurement systems of a mechanical and electromechanical nature. *Doebelin*.

**771 Principles of Automatic Control U G 4**  
(762) W, Sp. 3 cl., 1 2-hr. lab.

Prereq.: (605) or 503, 510 or (611), 552 or (620), and 670, or permission of instructor.

Not open to students with credit for (760).

A theoretical and experimental study of the principles of operation of feedback control systems, including servomechanisms and process controls. Doebelin.

**772 Control Systems Design U G 4**

(763) Sp. 3 cl., 1 2-hr. lab.

Prereq.: (760) or 771 or permission of instructor.

A study of the theoretical and experimental procedures involved in the design of feedback control systems including servomechanisms and process control. Doebelin.

**781 Mechanical Engineering Laboratory U G 3**

(779) W, Sp. 2 2-hr. lab. and 5 hrs. lab. planning and report writing.

Prereq.: (665) or 670.

Not open for graduate credit for students majoring in Mech. E.

The study and application of methods of experimental analysis. Buzton.

**782 Mechanical Engineering Laboratory U G 3**

(780) A, Sp. 2 2-hr. lab. and 5 hrs. lab. planning and report writing.

Prereq.: 781.

Continuation of 781.

**794 Advanced Studies in Mechanical Engineering U G 3-5**

(798) Su, A, W, Sp.

Prereq.: Permission of instructor.

Repeatable to a maximum of 18 cr. hrs.

Advanced topics in the various phases of Mechanical Engineering; the particular topics, the number of credit hours, and the instructor will be announced in the quarter previous to the one in which the course is offered.

**801 Advanced Applied Thermodynamics G 3**

A. 3 cl.

Prereq.: 500 or (605), and Math. 255, or equiv.

An analytical study of the thermodynamics of fluid flow. Marco.

**802 Advanced Applied Thermodynamics G 3**

W. 3 cl.

Prereq.: 500 or (605) and Math. 255 and 421, or equiv.

A study of classical thermodynamics, systems in equilibrium, and the thermodynamics of irreversible phenomena. Marco.

**803 Advanced Applied Thermodynamics G 3**

Sp. 3 cl.

Prereq.: 802.

Continuation of 802.

**807 Advanced Heat Transfer G 3**

W. 3 cl.

Prereq.: 510, and 881 or Math. 512, or Math. 557.

A study of the general heat transfer equations and their applications to heat transfer in solids and through fluids. The use of numerical and graphical analysis will be included. Han.

**809\* Advanced Heat Transfer G 3**

A. 3 cl.

Prereq.: (808) and Math. 255, or equiv.

A study of phase change and radiative heat transfer processes. Marco.

**810 Dynamics in Inviscid Fluids G 3**

(853) W. 3 cl.

Prereq.: 503, and 881 or Math. 512, or equiv.

Not open to students with credit for (808) or (850).

Three-dimensional, compressible, and incompressible inviscid flows, including irrotational and rotational motion with and without flow discontinuities. Han.

**811 Laminar Flow and Heat Transfer G 5**

(854) Sp. 5 cl.

Prereq.: 510 and 810.

Not open to students with credit for (808) or (850).

Laminar boundary layers and fluid flow with and without heat transfer, fully established entrance flows, free convection, extensions to compressible flows. Han.

**812 Turbulent Flow and Heat Transfer G 5**

(855) A. 5 cl.

Prereq.: 811.

Not open to students with credit for (808) or (850).

Turbulent boundary layers and flows with and without heat transfer for internal and external flows including laminar instability, Reynolds stresses, and mixing length theory. Marco.

**820 Internal Combustion Power Plants G 3**

(810) W. 3 cl.

Prereq.: 621 or equiv.

An advanced study of reciprocating internal combustion power plants. Engelman.

**821\* Advanced Principles of Energy Conversion in Turbomachinery G 3**

(811) Sp. 3 cl.

Prereq.: 624 or equiv.

An advanced study of power-absorbing, generating, and transmitting turbomachinery. Jones.

**822 Preliminary Design of Power Systems G Arr.**

(812) A, W, Sp. Conf.

Prereq.: Permission of instructor.

Preliminary design and evaluation of novel systems including analysis, synthesis, and possible experimental verification. Engelman and Jones.



**823 Advanced Steam Power Cycle and Turbine Analysis G 3**

(830) W. 3 cl.

Prereq.: (605) or 503, 510, and 624.

An advanced study of steam power cycles and design of steam turbine nozzles and blading. *Buzton*.

**824\* Advanced Combined Vapor Power Cycle Analysis G 3**

(831) Sp. 3 cl.

Prereq.: (605) and 823, or permission of instructor.

A study of conventional and novel binary vapor cycles and combined vapor-gas power cycles. *Buxton*.

**825 Advanced Vapor Power Cycle and Component Studies G Arr.**

(832) A, W, Sp. Conf.

Prereq.: 823 or 824, or permission of instructor.

Courses to be conducted on a conference basis with problems assigned to each student based on his needs and area of interest. *Buzton*.

**830 Introduction of Electro and Magneto Fluid Mechanics G 3**

Sp. 3 cl.

Prereq.: 510 and Math. 513, or permission of instructor.

A study of the interactions of electric and magnetic fields with liquids and gases. *Velkoff*.

**840\* Advanced Principles of Refrigeration G 3**

(820) W. 3 cl.

Prereq.: 741 or equiv.

Advanced study of conventional and novel processes including thermoelectric, magnetic, and gas systems. *Sepsy*.

**841 Advanced Environmental Control G 3**

(821) Sp. 3 cl.

Prereq.: 840 or equiv.

An advanced study of conventional and unique systems used to control the environment for occupancy by people, equipment, and material. *Sepsy*.

**842 Advanced Environmental Control Problems G Arr.**

(822) A, W, Sp. Conf.

Prereq.: Permission of instructor.

A study of methods of synthesis and analysis pertaining to the creative design of environmental control systems, involving conferences and theoretical and/or experimental investigations. *Sepsy*.

**850 Dynamics of High Speed Machinery G 3**

(841) W. 3 cl.

Prereq.: 662 or 663, and Math. 255, or equiv.

An advanced study of the interrelationships among forces, motions, and masses as related to rigid or elastic machine members. *Starkey*.

**851 Kinematic Synthesis and Analysis G 3**

(844) A. 3 cl.

Prereq.: 551, and 550 or 663.

A study of fundamental methods for the synthesis and analysis of motions in mechanical systems. *McLarnan*.

**860 Advanced Mechanical Design G 3**

(840) A. 3 cl.

Prereq.: 661 and Math. 255, or equiv.

A study of concepts, principles, and phenomenological theories related to the failure-prevention aspect of mechanical design. *Starkey*.

**861 Stress Analysis of Machinery G 3**

(843) Sp. 3 cl.

Prereq.: 550, and 662 and 663; 881 or Math. 512, or equiv.

A study of the concepts, principles, and procedures related to the analysis of stresses and strains in machine parts. *Starkey*.

**870 Modeling of Dynamic Systems G 4**

A. 3 cl., 1 2-hr. lab.

Prereq.: 772 and 880, or permission of instructor.

A study of theoretical, experimental, and computer methods for characterizing the dynamic behavior of systems in a form suitable for control system design. *Doebelin*.

**880 Lumped Parameter System Analysis G 3**

(860) A. 3 cl.

Prereq.: Math. 255 or equiv. or permission of instructor.

Lumped parameter system analysis of mechanical, thermal, hydraulic, pneumatic, and electromechanical systems; system response to periodic, transient, and random excitation; computer and physical system demonstrations. *Doebelin*.

**881 Distributed Parameter Systems G 3**

(861) A. 3 cl.

Prereq.: 510 and Math. 255, or equiv.

Not open to students with credit for 807, (808), or (850).

Numerical and analytical methods for obtaining solutions to engineering problems in heat transfer, fluids mechanics, and other field problems. *Bridge*.

**888 Mechanical Engineering Seminar G 2**

(890) A, Sp. 4 cl.

Prereq.: Mech. E. graduate standing.

A group study of the frontiers of knowledge in Mechanical Engineering by assignment of reading in technical literature, student presentations, and related group discussions.

**999 Research in Mechanical Engineering G Arr.**

(950) Su, A, W, Sp.

Research for thesis or dissertation purposes only.

## Medical Dietetics

(School of Allied Medical Professions)

Office: A-150B Starling Loving Hall, 320 West Tenth Avenue

Professor Lewis (Division Director); Assistant Professors Casbergue, McConkey, Prideaux, Scobie, Seubert, and Wenberg.

### 201 Introduction to Medical Dietetics U 1 (501) A. 2 cl.

Basic knowledge and experience in functional and sociological aspects of responsibilities of the Medical Dietitian. *Lewis and Staff.*

### 310 Introduction to Patient Dietary Care U 6

(510) Su. 4 cl., 6-hr. clinical study.

Prereq.: Home Ec. 310.

Principles and practice in the dietary care of the hospital patient. *McConkey.*

### 421 Management in Dietetics U 6

(515) A. 2 cl., 2 4-hr. lab.

Prereq.: Home Ec. 314.

Management in food service systems emphasizing quality of food, production planning, work organization, financial controls in quantity food preparation for regular and modified diets. *Prideaux.*

### 422 Management in Dietetics U 6

(516) W. 3 cl., 3 3-hr. lab.

Prereq.: 421.

Principles and recent trends in menu planning and food procurement in food service systems; responsibility for writing and implementing menus in hospital food services. *Prideaux.*

### 423 Management in Dietetics U 6

(517) Sp. 4 cl., 8-hr. clinical study.

Prereq.: 422, Bus. Org. 500.

Application of principles of personnel management as applied to food service systems. *Prideaux.*

### 521 Nutrition and Human Metabolism U 5

W. 4 cl., 2-hr. clinical study.

Prereq.: Home Ec. 310, Physiol. Chem. 312 or concur., Physiol. 312 or equiv.; Junior standing or permission of instructor.

The metabolism of essential nutrients at the cellular and intact levels of organization, energy balance and composition of human body. *Seubert.*

### 522 Nutrition and Human Metabolism U 5

Sp. 4 cl., 2-hr. clinical study.

Prereq.: 521.

A continuation of 521.

### 631 Nutrition in Disease U 6

(601) Sp. 5 cl., 4-hr. clinical study.

Prereq.: 310, 521.

Causes, results and dietary management of alterations in nutritional processes. *McConkey and Medical Staff.*

### 632 Nutrition in Disease U 6

(602) Su. 5 cl., 4-hr. clinical study.

Prereq.: 631.

A continuation of 631.

### 636 Teaching of Dietetics U 3

(626) Su, A, W, Sp. 2 cl., 3-hr. clinical study.

Prereq.: Med. Diet. senior standing.

Educational principles and practices as applied to the teaching responsibilities of the dietitian. *Wenberg.*

### 637 Community Nutrition U 3

(627) A, W, Sp. 2 cl., 4-hr. clinical study.

Prereq.: 632 or permission of instructor, concur. 636.

Public health nutrition programs and their services to the community, with particular reference to nutrition problems of special groups of the population. *Scobie.*

### 638 Pediatric Nutrition U G 3

(628) Su. 3 cl.

Prereq.: Graduate or senior standing in Med. Diet. and permission of instructor.

The nutrition of children; the influence of physical, psychological and social growth and development from infancy through adolescence. *Fletcher and Pediatric Staff.*

### 644 Medical Dietetics U 10

(620) A. 4 cl., 24-hr. clinical study.

Prereq.: 423, 632.

Identification, evaluation and solution of problems relating to dietetic and nutritional care of individuals and groups. *Sharp and Casbergue.*

### 645 Medical Dietetics U 10

(622) W. 4 cl., 24-hr. clinical study.

Prereq.: 644.

Continuation of 644.

### 646 Advanced Therapeutic Dietetics U G 12

W, Sp. 6 cl., 18-hr. clinical study.

Prereq.: 645, senior or graduate standing and permission of instructor.

Advanced study of disturbed metabolic processes affecting human nutrition and evaluation of complex dietetic problems accompanying them. *Lewis and Staff.*

### 693 Individual Studies in Nutrition U G 1-5 or Dietetics

(785) Su, A, W, Sp.

Prereq.: Graduate or senior standing in Med. Diet. and permission of instructor.

Problems in various phases of nutrition or Medical Dietetics not included in current course offerings. *Lewis and Staff.*

## Medical Illustration

(School of Allied Medical Professions)

Office: N-431 University Hospital, 410 West Tenth Avenue

Assistant Professor Shepard (Division Director); Instructors Kreutzfeld, Ollila, and Prosser.

### 100 Medical Illustration Field Experience U 0

Su, A, W, Sp.

Prereq.: Permission of instructor.

Practical application of Medical Illustration techniques in a functioning hospital department of Medical Illustration.



- 693 Special Problems** U 5  
*Su, A, W, Sp.*  
*Prereq.: Permission of instructor.*  
*Repeatable to a maximum of 45 cr. hrs.*

Advanced study for students in Medical Illustration including preparation of charts, graphs, medical and surgical illustrations, exhibits and general work for a medical center.

## Medical Microbiology

Office: M-110 Starling Loving Hall, 320 West Tenth Avenue

Professors Cramblett (Chairman), Macpherson, and Saslaw; Associate Professors Hamparian, Kapral, Schmitt, and Somerson; Assistant Professors Bowman, Conant, Haynes, Ottolenghi, and Thorne; Instructors Pollack and Torbet.

- 624 Medical Microbiology** G 6  
*A. 3 2-hr. lec. 3 2-hr. lab. P 7*  
*Prereq.: Graduate standing or Med. 2nd yr. standing.*

Morphologic, physiologic and serologic characteristics of pathogenic microorganisms; the epidemiology and pathogenesis of infectious diseases; methods of diagnosis, prevention and treatment. Cramblett and Staff.

- 625 Medical Microbiology** G 2  
*W. 4 1-hr. lec. for 5 weeks. P 3*  
*4 1-hr. lec., 2 2-hr. lab. for 5 weeks.*  
*Prereq.: 624.*

Continuation of 624. Cramblett and Staff.

- 626 Medical Microbiology** P G 1  
*Sp. 1 cl.*  
*Prereq.: 625 or permission of instructor.*

Application of basic principles of medical microbiology to infectious diseases; continuation of 625. Cramblett and Staff.

- 754 Medical Virology** P G 3  
*W. 3 1-hr. lec.*  
*Prereq.: 625; Biochem. 613 or 709 and 623 or 710, or Physiol. Chem. 611 and 612, or permission of instructor.*

Primary emphasis on viruses important to man; fundamental properties of viruses, host cell-virus interaction, pathogenesis and immunity. Hamparian, Conant, and Cramblett.

- 755\* Medical Virology** P G 4  
*Sp. 1 1-hr. lec. and 3 2-hr. lab.*  
*Prereq.: 754 or permission of instructor.*

The fundamental principles of methods commonly used for handling and studying viruses in the laboratory.

- 764 Bacteriophagy** P G 4  
*Sp. 2 1-hr. lec., 2 2-hr. lab.*  
*Prereq.: 625 or permission of instructor.*

Various phage-bacterium systems used to study and to exemplify basic mechanisms involved in virus infections. Bowman.

- 793 Individual Studies** P 6, 12, or 18  
**in Medical Microbiology** G Arr.  
*Prereq.: Med. 3rd or 4th yr. standing or permission of instructor.*

- 793.01 Diagnostic and Clinical Virology**  
*1, 2, or 3 months; Feb., Mar., and Apr.*  
**793.02 Problems in Virology**  
*3 months, Feb., July.*  
*Must repeat to 18 cr. hrs. for professional credit.*  
**793.03 Problems in Experimental Bacterial Viruses**  
*1, 2, 3, or 4 months.*  
*A, W.*  
*Repeatable to a maximum of 24 cr. hrs. for professional credit.*  
**793.04 Problems in Mycoplasma Research**  
*3 or 4 months.*  
*W, Sp.*  
*Must repeat to 18 or 24 cr. hrs. for professional credit.*

### Clinical Microbiology

(See Path. 793.07)

### Infectious Diseases

(See Ped. 793.03)

- 814 Seminar in Medical Microbiology** G 1  
*A, W, Sp.*

*Prereq.: Med. Microbiol. graduate standing or permission of instructor.*

*Repeatable with permission of instructor to a maximum of 9 cr. hrs.*

- 844†\* Mycoplasma, Rickettsiae, and Bedsoniae** G 2  
*Sp. 2 1-hr. lec.*  
*Prereq.: 625 or Microbiol. 607.*

Mycoplasmas and L-forms, members of the Bedsoniae group, Rickettsiae and Trachoma agents. Somerson and Pollack.

- 854†\* Molecular Basis of Antibiotic and Chemotherapeutic Action** G 3  
*Sp. 3 1-hr. lec.*

*Prereq.: 625; Physiol. Chem. 612; or Biochem. 612 or 707 and 622 or 708; or Microbiol. 761; or permission of instructor.*

Action of antibiotic and chemotherapeutic agents on specific sites in the metabolism and/or structures of cells stressing the comparative biochemistry of bacterial and animal cells. Ottolenghi.

- 864 Dynamic Aspects of Bacterial Infections** G 3  
*Sp. 3 1-hr. lec.*

*Prereq.: 625 or Microbiol. 625 or equiv. or permission of instructor.*

An analysis of the dynamic interrelationships between the host's and parasite's inherent physiological capabilities and how these expressions (other than specific immunity) are mutually modified. Kapral and Ottolenghi.

- 999 Research in Medical Microbiology** G Arr.  
*Su, A, W, Sp.*

*Prereq.: Graduate standing in Med. Microbiol.*

*Repeatable.*

Research for thesis or dissertation purposes only.

## Medical Technology

(School of Allied Medical Professions)

Office: N-329 University Hospital, 410 West Tenth Avenue

Professor Macpherson (Division Director); Assistant Professor Sutton (Assistant Division Director); Associate Professors Gruemer and Stevenson; Assistant Professors Allen, Greider, and Thorne; Instructors Earp, Torbet, and Wilson.

For related courses see Pathology.

### 511 Medical Technology Laboratory U 9

(640) Su. 27 lab. hrs.

Prereq.: Med. Tech. 4th yr. standing.

Laboratory demonstrations and practice in hematologic techniques, clinical microscopy and urinalysis. Stevenson and Staff.

### 512 Medical Technology Laboratory U 9

(641) A. 27 lab. hrs.

Prereq.: Med. Tech. 4th yr. standing.

Applied techniques and demonstrations in microbiology, immunology, mycology and parasitology. Sutton and Wilson.

### 513 Medical Technology Laboratory U 9

(643) W. 27 lab. hrs.

Prereq.: Med. Tech. 4th yr. standing.

Tissue technique; mycology and parasitology. Wilson and Sutton.

### 514 Medical Technology Laboratory U 9

(642) Sp. 27 lab. hrs.

Prereq.: Med. Tech. 4th yr. standing.

Demonstrations and applied techniques in the quantitative chemistry of blood and other body fluids. Earp.

### 515 Clinical Practice in Medical Technology U 10

(646) Su, A, W, Sp. 5 8-hr. labs.

Prereq.: 511, 512, 513, 514.

Application of medical laboratory techniques under supervision in the clinical laboratories of University Hospital. Macpherson and Staff.

## Medicine

Office: N-1013 University Hospital, 410 West Tenth Avenue

Professors Warren (Chairman), Allen, Atwell, Beman, Browning, DeLor, Doan (Emeritus), Fancher, J. Forman (Emeritus), W. Forman, Heisel, Jensen, Kezdi, Knies, J. Mitchell, W. Mitchell, Nelson (Emeritus), Palmer, Prior, Rothermich, Ryan, Saslaw, Schoene, Shillito, Skillman, Wall, Weissler, and Wilson; Associate Professors Ayres, Balcerzak, Bouroncle, Bradley, Carr, DeMerit, Evans, Ferris, Fulton, Green, Greenberger, Hatcher, Haynie, Hummel, Huston, E. Johnson, Kruger, McCoy, Mengel, Morrice, Osborne (Emeritus), Paulson, Phelps, Silberstein, Taguchi, Talbott, and Wooley; Assistant Professors Bartholomew, Bolton, Bowers, Carter, Cassel, Clodfelter, Conn, Donnerberg, Engelman, Friedman, George, Gifford, Goldberg, Goodman, Goulder, Graves, Grubbs, Guthrie, Harris, Hatfield, Humphrey, Jacques, P. Johnson, Keller, Kirk, Lefken, Leighton, Levine, Little, Long, Love, Martin, Matre, McKittrick, Merkle, Metzger, Murnane, Murphy, Obetz, Perkins, Philips, Pollack, Pritchett, Read, Rose-naw, Ross, Ruiz, Schoenfeld, Seyler, Sharkey, E. Smith, W. Smith, Sotos, Stevenson, Tennenbaum, Tiber, Tomashefski, Tronstein, Vincent, Watson, Weinberg, Wiederholt, H. Williams, and T. Williams.

### 575 Thoughts in Medicine P 0

(675) W. 1 cl.

Prereq.: Med. 1st yr. standing.

This course stresses the importance of knowing some of the historical aspects of medicine; material is presented in terms of the future development of medicine as a science.

### 601 The Comprehensive Evaluation of the Patient P 4

A.

Prereq.: 2nd yr. standing.

(601, 602, 603 offered in cooperation with the Departments of Ob. Gyn., Ophthal., Otol., Phys. Med., Ped., Prev. Med., Psychiatry, Radiol., and Surg.)

Integrated interdisciplinary experiences in clinical settings; emphasis on patient problems, pediatric or adult; bedside instruction, seminars, demonstrations, and lectures by faculty of all clinical departments.

### 602 The Comprehensive Evaluation of the Patient P 3

W.

Prereq.: 601.

Continuation of 601.

### 603 The Comprehensive Evaluation of the Patient P 13

Sp.

Prereq.: 602.

Continuation of 602.

### 661 Principles of Medicine P 2

Sp. 2 cl.

Prereq.: Dent. 3rd yr. standing.

A survey course in medicine to dental students considering the infectious, deficiency, and systemic diseases; representative diseases are selected for detailed consideration and demonstrations if material is available.



**714 Ward Clinics in Infectious Diseases P 6**

*1 month, offered all months except June.  
Prereq.: Med. 3rd or 4th yr. standing.*

Clerkship and seminars on common and unusual infectious diseases; formal instruction between 8 a.m. and 6 p.m., but student is on call throughout 24 hours. *Saslaw.*

**715 Clinical Medicine P 6, 12, or 18**

*4 months, offered July, Nov., Mar.  
Prereq.: Med. 3rd yr. standing.  
Must repeat to 24 cr. hrs.*

Students will spend four months in medicine, one-third of the time in each of these areas: General Medical Wards, Outpatient Department, and Subspecialty Ward Services, seeing general and special medical problems; formal instruction is between 8 a.m. and 6 p.m., but student is on call throughout 24 hours; subspecialties included are:

- a. Allergy
- b. Cardiology
- c. Dermatology
- d. Endocrinology
- e. Gastroenterology
- f. Hematology
- g. Neurology
- h. Pulmonary Diseases
- i. Renal Diseases
- j. Rheumatology

**716 Ward Clinics in Pulmonary Disease P 6**

*1 month, offered all months except June.  
Prereq.: Med. 3rd or 4th yr. standing.*

Clerkship and seminars at Means Hall, formerly the Ohio Tuberculosis Hospital, with emphasis on pulmonary medical problems; formal instruction between 8 a.m. and 6 p.m., but student is on call throughout 24 hours.

**740 Ambulatory Clinics in Medicine P 6, 12, 18**

*1 month, offered all months except June.  
Prereq.: Med. 4th yr. standing.  
Repeatable to a maximum of 18 cr. hrs.*

The diagnosis and treatment of ambulatory patients with general and special medical problems.

**751 Medical Clerkships P 6, 12, 18**

*1 month, offered all months except June.  
Prereq.: Med. 4th yr. standing; 3rd yr. standing, 715 or permission of instructor.  
Repeatable to a maximum of 18 cr. hrs.*

Ward clerkship in the following subspecialties of medicine, with bedside, didactic and seminar instruction; formal instruction is between 8 a.m. and 6 p.m., but student is on call throughout 24 hours.

- 751.01 Allergy
- 751.02 Cardiology
- 751.03 Dermatology
- 751.04 Endocrinology
- 751.05 Gastroenterology
- 751.06 Genetics
- 751.07 Hematology
- 751.08 Neurology
- 751.09 Renal Diseases
- 751.10 Rheumatology
- 751.11 Advanced Clinical Clerkships

**770 Basic Science Review P 3**

*1 month, May.  
Prereq.: Med. 4th yr. standing; concur.: Pharmacol. 770.*

Didactic review of new basic science developments; practice in electrocardiographic and phonocardiographic interpretation; elements of office practice and community relations.

**793 Individual Studies in Medicine P 6, 12, 18 G 1-5**

*All months, 1 or more months to be elected.  
Prereq.: Med. 3rd or 4th yr. standing and permission of division chief.*

Research on a minor problem under faculty supervision in the following specialties of medicine:

- 793.01 Allergy
- 793.02 Cardiology
- 793.03 Dermatology
- 793.04 Endocrinology
- 793.05 Gastroenterology
- 793.06 Genetics
- 793.07 Hematology
- 793.08 Infectious Diseases
- 793.09 Neurology
- 793.10 Pulmonary Diseases
- 793.11 Renal Diseases
- 793.12 Rheumatology

**798 Internship in Medicine P 18**

*Su, A, W, Sp.  
12 months full time, beginning July 1.  
Prereq.: Appointment as Intern, University Hospital.  
Repeatable to a maximum of 216 cr. hrs.*

Rotation through medical ward services and hospital emergency room; primary responsibility for patient care; attending and work rounds; staff conferences.

**799 Residency in Medicine P 18**

*Su, A, W, Sp.  
12 months full time, beginning July 1.  
Prereq.: Appointment as Resident, University Hospital.  
Repeatable to a maximum of 216 cr. hrs.*

Rotation through medical subspecialty, clinical and outpatient services; consultative activities, supervisory and teaching responsibilities in patient-care team; rounds; conferences.

**850 Seminar in Medicine G 1-3**

*(795) Su, A, W, Sp.  
Prereq.: Permission of instructor.*

Discussion of pertinent literature and research projects in various subspecialty areas with emphasis on basic science concepts. *Warren and Staff.*

- 850.01 Allergy
- 850.02 Cardiology
- 850.03 Dermatology
- 850.04 Endocrinology
- 850.05 Gastroenterology
- 850.06 General Medicine
- 850.07 Genetics
- 850.08 Hematology
- 850.09 Infectious Diseases
- 850.10 Neurology
- 850.11 Pulmonary Diseases
- 850.12 Renal Diseases
- 850.13 Rheumatology

**999 Research in Medicine G Arr.**

*(950) Su, A, W, Sp.  
Research for thesis or dissertation purposes only.*

## Metallurgical Engineering

Office: 141A Metallurgical Building, 116 West 19th Avenue

**Regents' Professor Fontana (Chairman); Professors Beck, Hirth, Mueller (Emeritus), Nold (Emeritus), Powell, Speiser, Spretnak, St. Pierre, and Williams; Adjunct Professor Parsons; Battelle Visiting Professor Kobayashi; Associate Professors Meyrick, Moazed, Rapp, and Staehle; Assistant Professors Boorstein and Rigney.**

### 400 Elements of Materials Science U 4

(611) A. W. Sp. 4 cl.

Metals and alloys, plastics, ceramics, and corrosion. *Powell and Rapp.*

### 410 Foundry Technology U 4

(501) A. 3 cl., 1 2-hr. lab.

Concur.: 440.

See footnote for *Indust. E. 201* re. Safety Glasses.

Survey of melting procedures, fundamentals of freezing metals, bases in metals, cast structures and properties, production of machine components by casting techniques. *Williams.*

### 420 Principles of Metallurgical Processes III U 4

(669) Sp. 3 cl., 1 3-hr. lab.

Prereq.: 430.

Analytical solutions to the equations for steady and unsteady flows of heat and mass; the solution to complex metallurgical transport problems using digital computer methods. *Staehle.*

### 430 Principles of Metallurgical Processes I U 3

(661) A. 3 cl.

Prereq. or concur.: Chem. 531.

Metallurgical mass and enthalpy balances; application of thermochemical methods and data to metallurgical problems; analytical solution to problems associated with the combustion of fuels and heat utilization. *Rapp.*

### 431 Principles of Metallurgical Processes II U 3

(662) W. 3 cl.

Prereq.: 430, concur. Chem. 532.

Application of the second law of thermodynamics and reaction rate theory to metallurgical processes. *St. Pierre.*

### 440 Physical Metallurgy I U 3

(560) A. 3 cl.

Physical properties of pure metals and single phase alloys; solid solutions. *Moazed.*

### 450 Physical Metallurgy II U 3

(630) W. 3 cl.

Prereq.: 440.

Diffusion, grain growth, cold-working and recrystallization in single-phase metals; nucleation of second phases. *Powell.*

### 451 Physical Metallurgy III U 3

(631) Sp. 3 cl.

Prereq.: 450.

Metallurgical phase diagrams, including unary, binary and ternary phase diagrams; phase rule. *Moazed.*

### 489 Industrial Experience U 5

(480) A. 5 cr. hrs. for each summer's work.

Repeatable to a maximum of 10 cr. hrs.

Register for course and submit report on experience during the Autumn Quarter following the summer in which industrial experience was obtained. Two summers or 20 weeks of approved work in metallurgical industries. *Williams.*

### 490 X-Ray Metallography U 2

Sp. 1 4-hr. lab.

Prereq.: 450.

Lectures on the theory of x-ray diffraction by crystals; experiments demonstrating the application of x-ray diffraction to metallurgical problems. *Powell.*

### 500 Physical Metallurgy of Steels U G 4

A. 4 cl.

Prereq.: 451.

Decomposition of austenite and the hardenability of steels; tempering of martensite. *Meyrick.*

### 502 Advanced Structure of Materials U G 3

(776) W. 3 cl.

Prereq.: 400 or equiv.

Not open to students majoring in Met. E.

Means of obtaining and controlling microstructure; relationship of structure to properties; survey of alloy systems; environmental limitations of materials. *Hirth.*

### 520 Principles of Extractive Metallurgy I U G 4

(761) W. 3 cl., 1 3-hr. lab.

Prereq.: 431 and 530, or permission of instructor.

Graphical representation of phase equilibria, including important M-O-C and M-O-S systems; treatment of gas-solid reaction kinetics, including decomposition, combustion, reduction, roasting and retorting. *Rapp.*

### 521 Principles of Extractive Metallurgy II U G 4

(762) Sp. 3 cl., 1 3-hr. lab.

Prereq.: 520.

Refining of alloys; vapor pressure; precipitation from liquid alloys; gases in metals; segregation and zone melting; partitioning. *St. Pierre.*

### 530 Metallurgical Thermodynamics U G 4

(712) A. 3 cl., 1 3-hr. lab.

Prereq.: 431.

Fundamental principles of thermodynamics; development of the important concepts and equations of thermodynamics; metallurgical solutions—activity behavior; heterogeneous equilibria and application to phase diagrams. *Boorstein.*

### 550 Physical Metallurgy IV U 3

(632) A. 3 cl.

Prereq.: 451.

Phase transformations in solids, including precipitation from solid solution, eutectoid decomposition, martensitic transformation, and order-disorder reactions. *Powell.*

### 551 Physical Metallurgy V U G 3

(703) W. 3 cl.

Prereq.: 550.

Relationship of physical and mechanical properties to microstructure; quantitative metallography. *Moazed.*



- 552 Physical Metallurgy VI** U G 3  
(704) Sp. 3 cl.  
Prereq.: 551.

Physical metallurgy of steels; austenite decomposition; hardenability; heat treatment; alloying effects. *Hirth*.

- 589 Inspection Trip** U 2  
(645) Sp. Taken between W. and Sp. Qtrs.  
One week trip to visit industrial plants and laboratories; report required. Maximum expense, \$90.00. *Williams*.

- 590 Metallography I** U G 2  
(671) A. 1 4-hr. lab.  
Concur.: 451.  
Principles and practice of metallography. *Powell*.

- 591 Metallography II** U G 2  
(672) W. 1 4-hr. lab.  
Prereq.: 590.  
Continuation of 590. *Moazed*.

- 592 Metallography III** U G 2  
(673) Sp. 1 4-hr. lab.  
Prereq.: 591.  
Continuation of 591. *Moazed*.

- 610 Foundry Molding Materials** U G 3  
(721) A. 3 cl.  
Prereq.: 410, Mineral. 414.  
A study of materials used in compounding of sand mixtures and the effect of thermal shock upon the properties of molded masses. *Williams*.

- 611 Foundry Molding Methods, Gating, and Riserling** U G 3  
(722) W. 3 cl.  
Prereq.: 410, 420.  
The manufacture of sand molds by various methods. Gating and riserling—a study of fluid flow and solidification to produce sound castings. *Williams*.

- 615 Shaping and Forming of Metals** U G 3  
(745) W. 3 cl.  
Prereq.: 660.  
Fundamental aspects of deformation of metals by forging, rolling, wire drawing, tube drawing, extrusion, piercing, and deep drawing. *Spretnak*.

- 620 Process Metallurgy** U G 3  
(763) W. 3 cl.  
Prereq.: 551.  
Analysis and design of processes for extracting and refining of metals. *St. Pierre*.

- 635 Corrosion** U G 3  
(730) A, Sp. 2 cl., 1 2-hr. lab.  
Prereq.: Engr. 4th yr. standing.  
*Fontana*.

- 660 Mechanical Metallurgy** U G 3  
(735) A. 3 cl.  
Prereq.: 551 and Engr. Mech. 420.  
Behavior of metals under simple and combined stress systems; elements of elastic theory, plastic deformation, dislocation theory, strength theories, and fracture. *Spretnak*.

- 670 Engineering Metallurgy I** U G 3  
(759) A. 3 cl.  
Prereq.: 551.

Basic properties of metals and alloys, cost structure, design factors, specifications, statistical methods; selection of metals and alloys, service failures. *Spretnak*.

- 671 Engineering Metallurgy II** U G 3  
(760) W. 3 cl.  
Prereq.: 670.  
Continuation of 670. *Spretnak and Staehle*.

- 675 Materials of Nuclear Technology** U G 3  
(716) A. 3 cl.  
Prereq.: 400 or equiv.

The physical metallurgy of reactor materials; the effects of reactor environment on the structure, the physical and mechanical properties of these materials. *Staehle*.

- 693 Metallurgical Investigations** U G 1-6  
(710) Su, A, W, Sp. 1 cl., 2 to 4 3-hr. lab.  
Prereq.: Permission of department.  
Repeatable to a maximum of 9 cr. hrs.

The class is divided into groups for investigation along the lines of their special interests as follows:

- The properties of metals and alloys.
- Production and refining of metals.
- Mineral and coal beneficiation.
- Fuels.
- Metallurgical equilibria.
- Corrosion engineering.
- Foundry.
- Powder metallurgy.

All investigations are under the close direction of instructors; comprehensive report required.

- 710 Casting Control** U G 3  
(724) Sp. 3 cl.  
Prereq.: 610 or 611.

A study of the factors involved in the elimination of defective products. *Williams*.

- 730 Thermodynamics of Alloys** U G 3  
(844) A. 3 cl.  
Prereq.: 530 or equiv.

Thermodynamics of liquid and solid alloy systems; numerous problems. *St. Pierre*.

- 735 Advanced Corrosion** U G 3  
(731) W. 3 cl.  
Prereq.: 635.

Theories and mechanisms of corrosion. *Fontana and Staehle*.

- 736 The Behavior of Materials at Elevated Temperatures** U G 3  
Sp. 3 cl.  
Prereq.: 530 or permission of instructor.

Treatment of the thermodynamic, kinetic, and morphological aspects of the reactions of pure metals and alloys with oxidizing environments at elevated temperatures; the mechanical properties of materials at elevated temperatures. *Rapp*.

- 740 Theory and Properties of Metals** U G 3  
(770) Sp. 3 cl.  
Prereq.: 552, Chem. 533, and Math. 255, or permission of instructor.  
Dependence of physical properties on structure; regularities in the structure of alloy systems; stability of alloy system; transplant phenomena in metals and alloys; magnetic phenomena. *Speiser*.
- 745 Advanced Physical Metallurgy I** U G 3  
(741) W. 3 cl.  
Prereq.: 552.  
Diffusion in metals. *Powell*.
- 750 Advanced Physical Metallurgy II** U G 3  
(740) A. 3 cl.  
Prereq.: 552.  
Detailed discussion of nucleation theory, preparation of single crystals, metallic crystals and grains, interpretation of microstructure in terms of interfacial tensions, grain growth, alloying. *Moazed*.
- 800 Theoretical Metallurgy** G 3  
(850) A. 3 cl.  
Prereq.: Met. E. graduate standing or permission of instructor.  
Repeatable to a maximum of 9 cr. hrs.  
Current topics in the field of specialization of the Visiting Battelle Professor of Metallurgy.
- 801 Theoretical Metallurgy** G 3  
(851) W. 3 cl.  
Prereq.: 800.  
Continuation of 800.
- 802 Theoretical Metallurgy** G 3  
(852) Sp. 3 cl.  
Prereq.: 801.  
Continuation of 801.
- 820 Physical Chemistry of Process Metallurgy** G 3  
(815) Sp. 3 cl.  
Prereq.: 820 and 730.  
Mechanisms of reactions in liquid alloys; applications of thermodynamics and kinetics to the analysis of metal refining. *St. Pierre*.
- 831 Advanced Metallurgical Thermodynamics II** G 3  
(845) W. 3 cl.  
Prereq.: 730.  
Continuation of 730. Thermodynamics of metallurgical systems. *Speiser*.
- 832 Advanced Metallurgical Thermodynamics III** G 3  
Sp. 3 cl.  
Prereq.: 831.  
Continuation of 831. Irreversible phenomena; metallurgical kinetics; application of rate theory to transport phenomena in metals and to metallurgical reactions. *Speiser*.
- 835†\* Point Defects in Crystalline Materials** G 3  
(830) W. 3 cl.  
Prereq.: 530 and 635 or equiv., or permission of instructor.  
A thermodynamic and electrochemical treatment of the formation, concentrations, mobilities, and interactions of ionic and electronic point defects in ionic compounds at high temperatures. *Rapp*.
- 841 Theory and Properties of Metals** G 3  
(771) A. 3 cl.  
Prereq.: 740.  
Continuation of 740. *Speiser*.
- 842 Theory and Properties of Metals** G 3  
(772) W. 3 cl.  
Prereq.: 841.  
Continuation of 841. *Speiser*.
- 845 Energetics and Kinetics of Surfaces** G 3  
(790) Sp. 3 cl.  
Prereq.: 530 or equiv.  
Discussion of properties of interfaces and their role in rate processes. *Moazed*.
- 851 Advanced Physical Metallurgy III** G 3  
(742) Sp. 3 cl.  
Prereq.: 750 and 745.  
Classification of phase transformation, precipitation from solid solution, martensitic transformations, decomposition of austenite, order-disorder. *Spretnak*.
- 852 Advanced Physical Metallurgy IV** G 3  
(743) A. 3 cl.  
Prereq.: 851.  
Relation of properties to microstructure. *Moazed*.
- 855 Structures of Metals and Alloys** G 3  
(780) W. 3 cl.  
Prereq.: 550 and 522, Math. 255, Chem. 533, or permission of instructor.  
Application of X-ray diffraction and electron diffraction theory to the study of the structure of metals and alloys; discussion of phase diagrams of alloys by X-ray methods; determination of pole figures and orientation. *Rigney*.
- 860 Quantitative Dislocation Theory** G 3  
(820) W. 3 cl.  
Prereq.: Math. 255 or permission of instructor.  
Mathematical treatment of dislocation theory and its application to flow and fracture phenomena in solids. *Hirth*.
- 861† Advanced Mechanical Metallurgy** G 3  
(835) Sp. 3 cl.  
Prereq.: 660.  
Detailed discussion of elasticity, plasticity, plastic deformation, dislocation theory of plastic flow, and fracture. Effect of state of stress on plastic flow. *Spretnak*.
- 881 Graduate Seminar** G 1  
(801) A, W, Sp.  
Prereq.: Met. E. graduate standing.  
Repeatable to a maximum of 6 cr. hrs.  
Discussion of current thesis problems and outstanding current literature in metallurgical engineering; round table discussion of selected metallurgical topics.



**884 Advanced Topics in Metallurgical Engineering G 2**

(901) Su, A, W, Sp. 2 cl.

Prereq.: Permission of instructor.

Repeatable to a maximum of 8 cr. hrs.

Pertinent topics to be announced.

**999 Research in Metallurgy G Arr.**

(950) Su, A, W, Sp.

Research for thesis or dissertation purposes only.

**Microbiology**

Office: 210 Edith Cockins Hall, 1958 Neil Avenue

Professors Birkeland, Bohl, Dodd, Macpherson, Randles, Rhens, Saslaw, and Weiser; Associate Professors Chorpennig, Dugan, Kreier, R. H. Miller, Rosen, Suie, Wilson, and Wolff; Assistant Professors Bigley, Frea, Kolodziej, and Pfister.

For related courses see Biology.

**211† General Microbiology U 5**

(511) A. 3 cl., 6 lab. hrs.

Prereq.: Superior performance in biol., chem., and math. in high school and permission of instructor.

A special course for first year college students. Morphologic and physiologic characteristics of microorganisms. Frea and Pfister.

**212† General Microbiology U 5**

(512) W. 3 cl., 6 lab. hrs.

Prereq.: Superior performance in biol., chem., and math. in high school and permission of instructor.

A special course for first year college students. Genetics and ecology of microorganisms. Frea, Dugan, and Randles.

**509 Microbiology in Relation to Man U G 5**

Su, A, W, Sp. 3 cl., 2 2-hr. labs.

Prereq.: 10 cr. hrs. of natural sci.; Biol, 100 recommended.

Not open to students with credit for 600 level courses in Microbiol.

Not to be taken concur. with Microbiol. 607.

Not for students who intend to take other courses in Microbiol.

Designed to give the student an understanding of microorganisms which have a bearing on the physical and economic well-being of man. Birkeland and Mote.

**GENERAL PREREQUISITES FOR COURSES  
NUMBERED 600 AND 700**

Unless otherwise indicated the prerequisites for 600 and 700 courses are fifteen hours of chemistry and ten hours of biological science.

**605 Basic Microbiology for Science Teachers U G 5**

Su. 3 cl., 3 2-hr. labs.

Prereq.: Biological science majors in the College of Education, or students in the Academic Year Institute, or graduate teachers of biological sciences.

Biology and physiology of bacteria. Their applications to foods, soil, fertility, sanitation, and disease. Laboratory exercises include those designed for limited equipment in high schools.

**607 General Microbiology U G 5**

A, Sp. 3 cl., 2 3-hr. lab.

May not be taken concur. with 509.

Not open to students with credit for (550).

The characteristics of microorganisms and their applications in everyday processes; experience in isolating and identifying bacteria. Kolodziej, Randles, and Pfister.

**609 General Microbiology U G 5**

A, W.

Continuation of 607. Dugan, Frea, and Randles.

**614 Veterinary Microbiology P G 5**

A. 3 cl., 2 3-hr. lab.

For students in Vet. Med. only. Not open to students with credit for 607.

The characteristics and evolution of microorganisms; principles and practices of pure culture methods; types of microbial metabolism; and introductory bacterial genetics. Kreier.

**615 Veterinary Microbiology P G 5**

(602) W. 3 cl., 3 2-hr. lab.

Prereq.: 614.

Not open to students with credit for 612.

A study of the mechanisms of infection and resistance to disease followed by discussion and laboratory exercises on characteristics of bacteria pathogenic for animals. Kreier.

**616 Veterinary Microbiology P G 5**

(603) Sp. 3 cl., 3 2-hr. lab.

Prereq.: 615.

Not open to students with credit for 613.

Continuation of 615. Lectures and laboratory exercises deal with the characteristics of bacteria, fungi, rickettsiae, and viruses that are pathogenic for animals. Kreier.

**622 Principle of Infection and Resistance U G 5**

W, Sp. 3 cl., 2 2-hr. labs.

Prereq.: 607 or equiv.

A study of host-parasite relationships, with emphasis on pathogenicity and immunity. Dodd.

**Medical Microbiology**

(See Med. Micro. 624 and 625.)

**625 Pathogenesis and Immunology of Infectious Diseases U G 5**

A, Sp. 3 cl., 2 2-hr. labs.

Prereq.: 622.

A consideration of the microbiological and immunological aspects of representative types of infectious diseases. Bigley.

**636 Food and Dairy Microbiology U G 5**

Sp. 3 cl., 2 2-hr. labs.

Prereq.: 609.

The role of microorganisms in normal and abnormal fermentation in foods and dairy products; related sanitation and public health problems.

**639† Aquatic Microbiology U G 4**

Su. (1st term), 3 all-day cl. per week.

Prereq.: 20 cr. hrs. of biological science, including Microbiol. 607 or equiv., and Chem. 231 or equiv. Given only at the Franz Theodore Stone Laboratory.

The nature and activities of bacteria in the aquatic environment, with emphasis on the different physiological types found in the Lake Erie region. *Randles.*

**652 General and Pathogenic Microbiology for Dental Students P G 6**

W. 4 cl., 2 2-hr. lab.

Prereq.: Dent. 2nd yr. standing.

A survey of the techniques and principles of microbiology and immunology with special reference to the microbiology of the oral cavity. *Rosen and Chorpenning.*

**Soil Microbiology**

(See Agron. 660.)

**693 Individual Studies U G 1-5**

(701) Su, A, W, Sp.

Prereq.: Microbiol. 4th yr. major or graduate standing and permission of instructor.

Repeatable.

Outlined by instructor to meet individual student's needs.

**710† History of Microbiology and Allied Fields U G 3**

Sp. (Lecs., confs., and library work.)

Prereq.: Microbiol. advanced graduate standing and permission of instructor.

The historical development of bacteriology, immunology, and allied fields. *Hudson.*

**723\* Immunology and Immunochemistry U G 5**

Sp. 3 cl., 2 3-hr. labs.

Prereq.: 625 and permission of instructor.

A thorough treatment of the basic phenomena involving antigens, antibodies, their natures and interactions. *Chorpenning.*

**725 Bacterial Pathogens U G 5**

A. 3 cl., 2 2-hr. labs.

Prereq.: 625.

Emphasis on the nature of representative bacterial disease agents. *Rheins.*

**729† Pathogenic Protozoology U G 3**

(620) W. 3 cl.

Prereq.: 625.

Various pathogenic protozoa of animals; host-parasite relationships; pathogenesis of protozoa diseases; structural characteristics of parasites. *Kreier.*

**734 Water Microbiology U G 5**

Sp. 2 cl., 2 2-hr. labs.

Prereq.: 609.

A basic study of the relationships and influence of aquatic environments on microorganisms and the effect of microbial metabolic processes on the quality of water. *Dugan.*

**736† Advanced Food Microbiology U G 5**

A. 2 cl., 2 3-hr. labs.

Prereq.: 636, concur. 622, or 625.

Advanced studies in the metabolism of microorganisms involved in preservation and food processing using radioisotopes, chromatography, and electrophoresis. *Kinsley.*

**749 Basic Virology U G 5**

W. 3 cl., 2 3-hr. labs.

Prereq.: 625 and bio. chem. or physiol. chem.

The basic physical, chemical, and biological properties of animal and bacterial viruses including intracellular replication and subcellular responses to virus infection. *Wolff.*

**760 Physiology of Bacteria U G 5**

(635) W. 3 cl., 2 3-hr. labs.

Prereq.: 609.

Nutritional requirements of bacteria, mechanisms of anaerobic dissimilation of carbon compounds, and industrial fermentation. *Frear, Kolodziej, and Randles.*

**761† Physiology of Bacteria U G 5**

(638) Sp. 3 cl., 2 3-hr. labs.

Prereq.: 760.

Bacterial enzymes, mechanisms and energy relationships in respiration, nitrogen metabolism, and bacterial syntheses. *Dugan, Frear, and Randles.*

**765† Applied Microbiology U G 5**

A. 3 cl., 2 3-hr. labs.

Prereq.: 761 and permission of instructor.

A study of the metabolic activities of microorganisms exploited to produce useful chemical reactions or commercial products.

**770 Microbial Cytology U G 5**

Sp. 3 cl., 2 3-hr. labs.

Prereq.: 609 and permission of instructor.

A thorough study of morphology, fine structure and composition of microorganisms and the relation of these to cell function. *Pfister.*

**780† Microbial Genetics U G 5**

Sp. 3 cl., 2 3-hr. labs.

Prereq.: 609 and permission of instructor.

A thorough study of microbial genetics with emphasis on bacteria and viruses.

**781† Special Groups of Microorganisms U G 5**

Sp. 3 cl., 2 3-hr. labs.

Prereq.: 609 and permission of instructor.

A study of the morphology, physiology, and ecology of "non-typical" bacteria, actinomycetes, myxobacteriales, spirochaetes, filamentous S bacteria and others.

**820 Advanced Virology G 5**

(720) Sp. 2 cl., 2 3-hr. labs.

Prereq.: 749.

Laboratory study of viruses and some of the virus diseases of animals and man; methods of isolation, propagation, identification, diagnosis, and control are considered. *Wolff.*



- 822\* Advanced Immunology G 3**  
 (722) *Sp.*  
*Prereq.: 723.*

Advanced studies of immunological phenomena, with emphasis on the physical and chemical aspects of antigens and antibodies. *Bigley and Dodd.*

- 824†\* Isoantigens and Antibodies G 5**  
*Sp. 3 cl., 2 2-hr. labs.*  
*Prereq.: 723.*

Studies of erythrocyte antigens of man and animals, their serological reactions, genetics, chemical structure, clinical implications, and use in ethnological, genetic and medico-legal studies. *Chorpenning.*

- 860\* Advanced Topics in Bacterial Physiology G 5**  
 (735) *A. 3 cl., 2 2-hr. labs.*  
*Prereq.: 761.*

Laboratory study of bacterial physiology by a variety of techniques. *Dugan, Frea, and Randles.*

- 880 Seminar in Microbiology G 3**  
 (807) *Su, A, W, Sp.*  
*Repeatable by permission of instructor only.*

- 896 Interdepartmental Seminar G 1-3**  
**in Polar and Alpine Studies**  
*Sp.*  
*(See under Interdepartmental Seminars.)*

- 897 Interdepartmental Seminar G 1**  
**in Natural Resources**  
*A, W, Sp.*  
*(See under Interdepartmental Seminars.)*

- 898 Interdepartmental Seminar G 1**  
**in Nutrition and Food Technology**  
*Sp.*  
*(See under Interdepartmental Seminars.)*

- 999 Research in Microbiology G Arr.**  
 (950) *Su, A, W, Sp.*  
 Research for thesis or dissertation purposes only.

## Military Science

Office: 253 Military Science Bldg., 2121 Tuttle Park Place.  
 Army Reserve Officers Training Corps  
 Colonel von Rohr and Staff.

### Basic Military Science

- 101 American Military History U 2**  
 (401) *A, W. 1 2-hr. cl., 1 hr. leadership lab.*  
 An introduction to the Army and the ROTC; American military history from 1607 through 1865; leadership laboratory.

- 102 American Military History U 2**  
 (402) *W, Sp. 1 2-hr. cl., 1 hr. leadership lab.*  
*Prereq.: 101 or permission of department head.*  
 American military history from 1865 to the present; leadership laboratory.

- 103 Individual Weapons and Marksmanship U 2**  
 (403) *Su, A, W, Sp. 1 2-hr. cl., 1 hr. leadership lab.*  
 Fundamentals of small arms operation; small-bore rifle marksmanship; leadership laboratory.

- 201 Map and Aerial Photograph Reading U 2**  
 (501) *A. 2 1-hr. cl., 1 hr. leadership lab.*  
*Prereq.: 101, 102, 103 or equiv.*

Application of basic principles of map reading, emphasizing terrain evaluation, including map symbols, military grid system, and elementary aerial photograph reading; leadership laboratory.

- 202 U.S. Army and National Security U 2**  
 (502) *W. 2 1-hr. cl., 1 hr. leadership lab.*  
*Prereq.: 201 or permission of department head.*  
 Role of the U.S. Army in national security; leadership laboratory.

- 203 Introduction to Operations and Basic Tactics U 2**  
 (503) *Sp. 2 1-hr. cl., 1 hr. leadership lab.*  
*Prereq.: 202 or permission of department head.*

Mission, organization, and composition of the infantry rifle squad; combat formations, patrolling; field fortifications and camouflage; principles of offensive and defensive combat; leadership laboratory.

### Advanced Military Science

- 301 Military Leadership, Communication, Counterinsurgency and Combat Branches of the Army U 3**  
 (601) *A. 2 2-hr. cl., 1 hr. leadership lab.*  
*Prereq.: 101 through 203 or equiv.*

Study of psychological and sociological factors affecting human behavior; introduction to communication systems and counterinsurgency; familiarization with the combat branches of the Army; leadership laboratory.

- 302 Small Unit Tactics U 3**  
 (602) *W. 2 2-hr. cl., 1 hr. leadership lab.*  
*Prereq.: 301 or permission of Professor of Military Science.*

Study of small unit organization and tactics to include estimates and orders during attack, defense, and retrograde operations; leadership laboratory.

- 303 Branches of the Army, Military Teaching Principles, and Pre-Summer Camp Orientation U 3**  
 (603) *Sp. 2 2-hr. cl., 1 hr. leadership lab.*  
*Prereq.: 302 or permission of Professor of Military Science.*

Familiarization with the Service Branches of the Army; study of the techniques fundamental to military instruction; familiarization with policies, procedures and training at summer camp; leadership laboratory.

- 401 Military Operations U 3**  
 (701) *A. 2 2-hr. cl., 1 hr. leadership lab.*  
*Prereq.: 303, or permission of the Professor of Military Science.*

The concept of Army combat and combat support organizations; study of organization and operations to include managerial aspects of command and staff; leadership laboratory.

- 402 Logistics and Administration U 3**  
 (702) *W. 2 2-hr. cl., 1 hr. leadership lab.*  
*Prereq.: 401 or permission of Professor of Military Science.*

Study of logistics, training management, and Army administration; leadership laboratory.

- 403 Military Justice, the United States U 3**  
**in World Affairs, Map Reading,**  
**and Service Orientation**  
 (703) *Sp. 2 2-hr. cl., 1 hr. leadership lab.*  
*Prereq.: 402 or permission of Professor of Military Science.*

Study of Military Justice; review of map reading; the role of the United States in world affairs considering world economic, political, geographic, and resource factors; service orientation; leadership laboratory.

## Mineralogy

Office: 291 Watts Hall, 104 West 19th Avenue

Professors Foster (Chairman), Ehlers, McConnell, McLachlan, and Wenden; Associate Professor Tettenhorst.

- 414 Principles of Mineralogy U 5**  
 (506) *A, W, Sp. 3 cl., 2 2-hr. lab.*  
*Prereq.: Chem. 122 or 112, Math. 150 or 117.*  
*Not open to students with credit for 411, 412 or 421.*

An introductory course, emphasizing principles and illustrating the internal structure of solids and relationship of structure and chemical composition to properties, applications, and external features. *Ehlers and Tettenhorst.*

- 421 Elementary Mineralogy and U 3**  
**Crystallography**  
*A. 3 2-hr. lab.*  
*Prereq.: Chem. 122 or 112.*  
*Not open to students with credit for 414.*

Crystal systems, symmetry, common forms and cleavage of crystals; chemical bonding and mineral structures; selected phase diagrams; sight identification of about 80 common minerals using physical and chemical properties. *Wenden.*

- 422 Elementary Optical Mineralogy U 3**  
*W. 3 2-hr. lab.*  
*Prereq.: 421.*

Elements of optical mineralogy; mineral properties in plane and cross-polarized light; mineral identification in powders and thin-sections; X-ray diffraction in mineral identification and mineral-mixture analysis. *Wenden.*

- 605 Thermochemical Mineralogy U G 5**  
*A. 5 cr. hrs.*  
*Prereq.: Chem. 533 or equiv., or permission of instructor.*

Thermal properties of minerals; application of high temperature equilibrium to problems of petrology and technology, using phase diagrams. *Foster.*

- 621 Microscopic Mineralogy U G 5**  
*A, W. 2 cl., 3 2-hr. lab.*  
*Prereq.: 412, 414, or 422, and Physics 112 or equiv.*  
*Not open to students with credit for (625).*  
*A. Geol. graduates; W. Cer. E. majors.*

Theory and use of polarizing microscope; determination of optical constants and identity of minerals. *Ehlers.*

- A. Emphasis on mineral powders.*  
*W. Emphasis on powders and thin-sections of minerals and synthetic products.*

- 624 Microscopy of Opaque Minerals U G 3**  
 (611) *Sp. 3 2-hr. lab.*  
*Prereq.: 414 or 412, 621.*

Application of the petrographic microscope to the study of opaque minerals and ores, their identification, textures, and paragenesis. Polished section preparation, etch tests, and micro-chemical tests. *Wenden.*

- 645 Advanced Crystallography U G 5**  
 (601) *A. 3 cl., 2 2-hr. lab.*  
*Prereq.: 414, 411, or equiv.*

Principles of crystallography; morphology, structure and habit in crystals; twinning; two-circle goniometer measurement and drawing of crystals; crystallographic calculations; investigations with precession X-ray camera. *Wenden.*

- 646 Advanced Mineralogy U G 5**  
*W. 3 cl., 2 2-hr. lab.*  
*Prereq.: 414, 421, or equiv.*

Mineral stoichiometry and calculations; application of instrumental methods to mineral identification and the study of mineral suites from selected localities; physical and chemical properties and paragenesis of minerals on crystal chemical principles. *Wenden.*

- 650 X-ray Powder Diffraction U G 5**  
*W. 3 cl., 2 3-hr. lab.*  
*Prereq.: 414 and Math. 153.*

Emphasis on diffractometry; evaluation of instrumental, geometrical and other factors affecting intensity and position of diffraction maxima; qualitative and quantitative analysis, particle-size and other applications. *Tettenhorst.*

- 654 X-Ray Crystallography U G 5**  
 (754) *Sp. 3 cl., 2 3-hr. labs.*  
*Prereq.: 414, 411, or equiv.*  
*Not open to students with credit for Chem. (654).*

Principles of X-ray crystal analysis; phase identification by powder film and diffractometer methods. X-ray fluorescent analysis; particle size determination; unit cell and space group by rotation and Weissenberg methods. *Wenden.*

- 665 Crystallochemical Mineralogy U G 3**  
 (755) *W. 3 cl.*  
*Prereq.: 414, 412, or permission of instructor.*

Application of crystal chemical principles to study of major structure types, to properties, stability and occurrence of minerals, and to problems of polymorphism, solid solution and crystal growth. *Wenden.*



- 706 Advanced Thermochemical Mineralogy** U G 3  
W. 3 cl.  
Prereq.: 605.

Derivation and interpretation of phase diagrams of ternary and quaternary systems of importance in petrology and technology. *Foster*.

- 722 Igneous Petrology** U G 4  
W. 2 cl., 2 2-hr. lab.  
Prereq.: 621.

Petrogenesis of common rock-forming systems; microscopic thin-section investigations of igneous rocks, correlating texture, mineral composition, alteration, and geological agencies. *Ehlers and Schultz*.

- 730 Clay Mineralogy** U G 3  
Sp. 3 cl., confs.  
Prereq.: 414 and 654, or permission of instructor.

Relationship of structure and chemical composition of clay minerals to properties, origin, occurrence, and applications. Evaluation of X-ray, differential thermal, infrared, and electron microscope data. *Tettenhorst*.

- 784 Mineralogical Investigations** U G 3-5  
(701) A, W, Sp. 6-10 hr. lab. and confs.  
Prereq.: Satisfactory courses in field of problem, and permission of instructor.  
Repeatable to a maximum of 15 cr. hrs.

Special problems in petrological, thermochemical, crystallochemical, X-ray or clay mineralogy, or other advanced non-thesis research.

- 807 Hydrothermal Mineralogy** G 3  
Sp. 3 cl.  
Prereq.: 722 and Chem. 531, 532, and 533 or equiv.

The effect of water under various pressure and temperature conditions related to magmatic and experimental conditions; mineral synthesis, stability, and growth of single crystals in hydrothermal environments discussed and demonstrated on standard equipment. *Ehlers*.

- 808 High Pressure Mineralogy** G 3  
Sp. 3 cl.  
Prereq.: 722 and Chem. 531, 532, and 533 or equiv.

The general approach of high pressure techniques to synthesis and stability of inorganic mineral compounds in both geological and experimental environments; stability of minerals within the earth's crust and mantle with technological applications. *Ehlers*.

- 823 Advanced Optical Mineralogy** G 3  
(725) A. 3 2-hr. lab.  
Prereq.: 722 or equiv.

Theory and determination of optical constants and directional features using Universal Stage; includes determination of optic angles, feldspar compositions, double variation technique and petrofabric analysis. *Ehlers*.

- 831 Advanced Clay Mineralogy** G 3  
A. 3 cl., lec., labs., and confs.  
Prereq.: 730.

Advanced topics including one-dimensional structure plots, two-dimensional diffraction effects, and relation of structure and composition; individual problems; evaluation of current investigations. *Tettenhorst*.

- 858 Advanced Mineral Structures** G 3  
Sp. 3 cl.  
Prereq.: 665, Chem. 675.

Review of methods of crystal structure determination by optical, physical and X-ray methods, selected examples from each mineral class; computations illustrated with laboratory data. *McLachlan*.

- 875 Crystal Growth** G 3  
A. 3 cl., confs.  
Prereq.: 706, Chem. 533 and 675, Math. 255.

A survey of the known methods of growing crystals coupled with the theory of the kinetic principles involved in growth, nucleation and habits of growth. *McLachlan*.

- 876 Crystal Physics** G 3  
W. 3 cl.  
Prereq.: Chem. 675, Physics 521, Math. 571.

An introduction to the use of tensors in the description of the gross physical properties of crystals. *McLachlan*.

- 881 Seminar in Mineralogy** G 1-3  
(801) A, W, Sp. 2-6 hr. confs.  
Repeatable to a maximum of 12 cr. hrs.

Conference and reports on the developments in mineralogical research and their application to the problems of mineralogy and mineral technology.

- 999 Research in Mineralogy and Petrography** G Arr.  
(950) Su, A, W, Sp.

Research for thesis or dissertation purposes only.

## Music

Office: 105 Hughes Hall, 1899 North College Road

Professors Rigsby (Director), Barnes, Evans, Gilliland, Haddad, Hardesty, Held, Hoppin, Kuehefuhs, Livingston, Main, McBride, McGinnis, Phelps, Schneider, Spohn, and Staiger; Associate Professors Benner, Cady, Hickfang, Jones, Luce, McClure, Mixter, Mooney, Muschick, Newcomb, Poland, Ramsey, Rast, Tetley, Kardos, Titus, Tolbert, Vedder, Walker, and Wilson; Assistant Professors Barnes, Bonney, Casey, Cooper, Huff, Sexton, Simmons, Suddendorf, Warner, Whallon, and Wilson; Instructors Baker, Battenberg, Culver, Droste, Green, LeBlanc, Levey, Platt, Wink, and Zimmerman.

Preceding the class sessions of Music 221 and Music 201, placement tests will be given to determine the ability of students in these subjects. (See School of Music for details of time and place.)

- 100 Concert Attendance** U 1  
(400R) A, W, Sp. Attendance at 9 concerts or recitals.  
Prereq.: Attendance at 45 concerts and recitals.

- 141 Introduction to Music** U 3  
(404) Su, A, W, Sp. 3 cl.  
Not for credit to Mus. majors.  
A musical background is not required.

A consideration of the materials of music and important styles, forms, and composers from the Baroque to the present.

**142 Introduction to the History of Western Music I U 3**

(451) A, W, Sp. 3 cl.

Prereq.: 141.

Not for credit to Mus. majors.

An historical survey of music from classical antiquity to about 1750.

**143 Introduction to the History of Western Music II U 3**

(452) Su, A, W, Sp. 3 cl.

Prereq.: 141.

Not for credit to Mus. majors.

An historical survey of music from 1750 to the present.

**CAMPUS MUSIC ORGANIZATIONS**

University Campus Music Organizations are open to all students in the University who may receive full credit according to regulations of the college in which they are enrolled.

**180 University Chorus U 1**

(A1) Su, A, W, Sp. 3 or more hrs. rehearsal each week.

Prereq.: Admission by audition only.

Oratorio and large choral works are studied and performed.

**181 Symphonic Choir U 1**

(A3) A, W, Sp. 3 or more hrs. rehearsal each week.

Prereq.: Admission by audition only. Application should be made to director.

Symphonic Choir is a concert organization singing a variety of literature.

**182 Women's Glee Club U 1**

(A4) A, W, Sp. 3 or more hrs. rehearsal each week.

Prereq.: Membership in this concert group is open to all women students in the University by audition. Auditions are held at stated periods, and vacancies in the club are filled with the best available voices.

Study and performance of choral literature for women's voices. Simmons.

**183 Men's Glee Club U 1**

(A5) A, W, Sp. 3 or more hrs. rehearsal each week.

Prereq.: Membership in this concert group is open to all men students in the University by audition only. Auditions are held at stated periods, and vacancies in the club are filled with the best available voices.

Study and performance of choral literature for men's voices. Staiger.

**184 University Symphony Orchestra U 1**

(B1) Su. (1st term). A, W, Sp. 3 or more hrs. rehearsal each week.

Prereq.: Membership is open to all University students and personnel and to symphony players from in and about Columbus. Admission by audition and permission of director.

The University Symphony Orchestra is a 75-piece orchestra of full instrumentation devoted to the preparation of standard and modern literature; the group gives at least three concerts each year. Hardesty.

**185† University Little Orchestra U 1**

(B3) A, W, Sp. 3 or more hrs. rehearsal each week.

Prereq.: Admission by audition.

A selected group giving public and broadcast performances; professional orchestral techniques are emphasized.

**186 University Football Marching Band U 1**

(C1) A. 3 or more hrs. rehearsal each week.

Prereq.: Admission by audition and permission of director.

Open to men students.

The University Marching Band is a selected group of 120 brass and percussion players which performs at football games and rallies during Autumn Quarter. Spohn.

**187 ROTC Band (Air-Army) U 1**

(C2) W, Sp. 3 or more hrs. rehearsal each week.

Prereq.: Admission by audition and permission of director.

Open to men students.

Spohn.

**188 The University Concert Band U 1**

(D1) Su. (1st term). A, W, Sp. 3 or more hrs. rehearsal each week.

Prereq.: Admission by audition and permission of director.

A selected group of limited membership devoted to the preparation and performance of the best band literature; gives public concerts and performs for University functions. McGinnis.

**189 The University Buckeye Band U 1**

(D2) A, W, Sp. 3 or more hrs. rehearsal each week.

Prereq.: Admission by audition and permission of director.

Provides concert band participation for students unable for some reason to play in the University Concert Band; performs for University functions and gives public concerts. Evans and Baker.

**190 Opera Chorus U 1**

(F1) A, W, Sp. 2 lab. hrs. 2 or more hrs. rehearsal each week.

Prereq.: Admission by audition and permission of instructor.

Not open to juniors and seniors in opera program.

**191 Vocal Ensembles U 1**

(F2) Su. (1st term). A, W, Sp. 2 or more hrs. rehearsal each week.

Prereq.: Admission by audition and permission of instructor.

**192 String Ensembles U 1**

(F4) Su. (1st term). A, W, Sp. 2 or more hrs. rehearsal each week.

Prereq.: Admission by audition and permission of instructor.

**193 Woodwind Ensembles U 1**

(F5) Su. (1st term). A, W, Sp. 2 or more hrs. rehearsal each week.

Prereq.: Admission by audition and permission of instructor.



- 194 Brass Ensembles U 1**  
 (F6) *Su. (1st term). A, W, Sp. 2 or more hrs. rehearsal each week.*  
*Prereq.: Admission by audition and permission of instructor.*

- 199 Miscellaneous Ensembles U 1**  
 (F7) *Su, A, W, Sp. 2 or more hrs. rehearsal each week.*  
*Prereq.: Admission by audition and permission of instructor.*

- 201 Applied Music U 1-2**  
 (408) *Prereq.: Passing of Placement Test. Required of students in all Music Curricula to a minimum of 6 qtr. hrs.*  
*Open to other qualified students within the limits of instructional facilities by permission of Director of the School of Music.*

Instruction in Applied Music for the purpose of developing musicianship, performance, and a wide reading knowledge of music literature. A brief survey of the history of the instrument and its literature will be made.

Instruction is given in individual lessons for two one-half hour periods each week. In addition, students are required to attend the Studio Classes and Honors Recitals on Tuesday and Thursday at 1:00 p.m. during the 3rd, 5th, 7th and 10th week of each quarter.

- 201.01 Piano**  
*Su, A, W, Sp.*  
*Haddad, Jones, Mooney, Whallon, Tetley-Kardos, and Platt.*

- 201.02 Voice**  
*Su, A, W, Sp.*  
*Staiger, Gilliland, Muschick, Cooper, Casey, and Hickfang.*

- 201.03 Strings**  
*Su. (1st term). A, W, Sp.*  
*Hardesty, McClure, Culver, Vamos, and Amarandos.*

- 201.04 Woodwinds**  
*Su. (1st term). A, W, Sp.*  
*McGinnis, Titus, Green, Wilson, Baker, and Lord.*

- 201.05 Brass**  
*A, W, Sp.*  
*Evans, Suddendorf, Battenberg, Droste, Le Blanc, and Jones.*

- 201.06 Organ**  
*Su, A, W, Sp.*  
*Held, Wilson, and Rigsby.*

- 201.07 Percussion**  
*A, W, Sp.*  
*Spohn and Moore.*

- 201.08 Harpsichord**  
*A, W, Sp.*

- 201.09 Harp**  
*A, W, Sp.*

- 212 Diction for Singers (Italian) U 2**  
*A. 3 cl.*

*Prereq.: Minimum of 6 cr. hrs. of applied study in voice or permission of instructor.*

Fundamentals of phonetics and sound production as applied to singing in Italian. Gilliland.

- 213 Diction for Singers (German) U 2**  
*W. 3 cl.*

*Prereq.: Minimum of 6 cr. hrs. of applied study in voice or permission of instructor, and 212.*

Fundamentals of phonetics and sound production as applied to singing in German. Cooper.

- 214 Diction for Singers (French) U 2**  
*Sp. 3 cl.*

*Prereq.: Minimum of 6 cr. hrs. of applied voice or permission of instructor, and 212.*

Fundamentals of phonetics and sound production as applied to singing in French. Muschick.

- 221 Music Theory I U 3**  
 (401) *A. 6 lab. hrs.*

*Prereq.: Passing of Placement Tests.*

The elements of music; development of aural and notational skills.

- 222 Music Theory II U 3**  
 (402) *W. 6 lab. hrs.*

*Prereq.: 221.*

Interval studies, rhythmic drill, sight-singing, dictation, keyboard practice, detailed study of primary harmonies and the dominant seventh chord.

- 223 Music Theory III U 3**  
 (403) *Sp. 6 lab. hrs.*

*Prereq.: 222.*

Complex interval studies, rhythmic drill, sight-singing, dictation, keyboard practice, non-chordal tones, the introduction of secondary triads.

- 241 Music History I U 3**  
 (551) *A. 3 cl., 2 lab. hrs.*

*Prereq.: 223.*

The development of music from the earliest times through the sixteenth century.

- 242 Music History II U 3**  
 (552) *W. 3 cl., 2 lab. hrs.*

*Prereq.: 241.*

The development of music in the seventeenth and eighteenth centuries.

- 243 Music History III U 3**  
 (553) *Sp. 3 cl., 2 lab. hrs.*

*Prereq.: 242.*

The development of music in the nineteenth and twentieth centuries.

- 261 Applied Music Methods and Materials I U 1-2**

(511)

- 261.01 Piano**  
*Su. (1st term). A, W, Sp. 4 cl.*

- 261.02 Voice**  
*Su. (1st term). A, W, Sp. 4 cl.*

- 261.03 Strings**  
*A. 4 cl.*

- 261.04 Woodwinds**  
*A. 4 cl.*

- 261.05 Brass  
Su. (1st term). W. 4 cl.
- 261.07 Percussion  
W, Sp. 4 cl.

**262 Applied Music Methods and Materials II** U 2  
(512) Prereq.: 261 or equiv.

- 262.01 Piano  
A, W, Sp. 4 cl.
- 262.02 Voice  
W, Sp. 4 cl.
- 262.03 Strings  
W. 4 cl.
- 262.04 Woodwinds  
Sp. 4 cl.
- 262.05 Brass  
Sp. 4 cl.

**263 Applied Music Methods and Materials III** U 2  
Prereq.: 262 or equiv.

- 263.01 Piano  
Sp. 4 cl.
- 263.02 Voice  
Sp. 4 cl.

**264 Applied Music Methods and Materials IV** U 2  
Prereq.: 263 or equiv.

- 264.01 Piano  
A. 4 cl.
- 264.02 Voice  
A. 4 cl.

**265 Music for Group Recreation** U 2  
(514) A, Sp. 3 cl.

Preparation and participation in folk singing and dancing. Experience in group leadership designed for recreation and camp leaders, social workers, teachers of music and classroom teachers. *Sexton*.

**270 Basic Experiences in Music: Fundamentals** U 3

(547) Su, A, W, Sp. 5 cl.

Ear-training, music reading, creative writing, voice production, and some instrumental experience as applied to the music program in the elementary school. *Sexton*.

**271 Basic Experiences in Music: Literature and Listening** U 2

(546) Su, A, W, Sp. 4 cl.

The elements involved in active, intelligent listening, understanding, and appreciation of representative works of music as applied to the music program in the elementary school. *Sexton*.

**312 Opera Performance** U 2

(515) Su. (1st term). A, W, Sp. 4 lab. hrs.

Prereq.: Junior or senior standing and permission of instructor.

Repeatable to a maximum of 10 cr. hrs.

Instruction and experience in preparation for opera performance, including study of operatic literature and coaching of operatic roles. *Hickfang*.

**370 Music for Elementary Teachers** U 3

(548) Su, A, W, Sp. 5 cl.

Prereq.: 270, 271, and professional standing.

Music literature and teaching aids for children, including singing, rhythmic, creative, and listening experiences, and their presentation. *Sexton and Bonney*.

**401 Applied Music** U 1, 2, or 4

(508) Prereq.: 201.

Open to other qualified students within the limits of instructional facilities by permission of the Director of the School of Music.

Instruction in Applied Music for the purpose of developing musicianship, performance, and a wide reading knowledge of music literature.

Instruction is given in individual lessons of two one-half hour periods each week. In addition, students are required to attend the Studio Classes and Honors Recitals on Tuesday and Thursday at 1:00 p.m. during the 3rd, 5th, 7th and 10th week of each quarter.

401.01 Piano  
Su, A, W, Sp.

401.02 Voice  
Su, A, W, Sp.

401.03 Strings  
Su. (1st term). A, W, Sp.

401.04 Woodwinds  
Su. (1st term). A, W, Sp.

401.05 Brass  
A, W, Sp.

401.06 Organ  
Su, A, W, Sp.

401.07 Percussion  
A, W, Sp.

401.08 Harpsichord  
A, W, Sp.

401.09 Harp  
A, W, Sp.

**421 Harmony I** U 3

(527) A. 3 cl.

Prereq.: 223.

Seventh chords, common-chord modulation, borrowed tones and borrowed chords.

**422 Harmony II** U 3

(528) W. 3 cl.

Prereq.: 421.

Secondary dominants, modulation to remote keys and elementary instrumentation.



**423 Harmony III U 3**

(529) Sp. 3 cl.

Prereq.: 422.

Chromatic chord forms, chromatic modulation, composition.

**424 Ear-Training I U 2**

(517) A. 4 lab. hrs.

Prereq.: 223.

Sight-singing, dictation, and keyboard harmony.

**425 Ear-Training II U 2**

(518) W. 4 lab. hrs.

Prereq.: 424 and 421.

Intermediate sight-singing, dictation, and keyboard harmony.

**426 Ear-Training III U 2**

(519) Sp. 4 lab. hrs.

Prereq.: 425 and 422.

Advanced sight-singing, dictation, and keyboard harmony.

**427 Keyboard Harmony I U 2**

(567) A. 2 cl.

Prereq.: 261.01, 262.01, and 263.01 (6 cr. hrs.), 201.01 (6 cr. hrs.), or equiv.

Systematic review and utilization of basic harmonic materials at the keyboard. Walker.

**428 Keyboard Harmony II U 2**

(568) W. 2 cl.

Prereq.: 427.

An introduction to score reading at the keyboard. Walker.

**429 Keyboard Harmony III U 2**

(569) Sp. 2 cl.

Prereq.: 428.

Score reading at the keyboard. Walker.

**501 Applied Music U 1, 2, or 4**

(509) Prereq.: 401.

Open to other qualified students within the limits of instructional facilities by permission of the Director of School of Music.

Instruction in Applied Music for the purpose of developing musicianship, performance, and a wide reading knowledge of music literature.

Instruction is given in individual lessons of two one-half hour periods each week. In addition, students are required to attend the Studio Classes and Honors Recitals on Tuesday and Thursday at 1:00 p.m. during the 3rd, 5th, 7th, and 10th week of each qtr.

**501.01 Piano**

Su, A, W, Sp.

**501.02 Voice**

Su, A, W, Sp.

**501.03 Strings**

Su. (1st term). A, W, Sp.

**501.04 Woodwinds**

Su. (1st term). A, W, Sp.

**501.05 Brass**

A, W, Sp.

**501.06 Organ**

Su, A, W, Sp.

**501.07 Percussion**

A, W, Sp.

**501.08 Harpsichord**

A, W, Sp.

**501.09 Harp**

A, W, Sp.

**521 Form and Analysis U 3**

(530) Su, A. 3 cl.

Prereq.: 423.

Introduction to the study of the formal structure of music. Kuehfuhs, McClure, Vedder, Barnes, and Wilson.

**524 Instrumentation U 3**

(532) W, Sp. 3 cl.

Prereq.: 423.

An elementary course in scoring for the instruments of the orchestra and the band. McClure and Barnes.

**531 Counterpoint U 3**

(562) A. 3 cl.

Prereq.: 423.

A fundamental course in counterpoint including species counterpoint, double counterpoint, imitation, and two-voice canon. Barnes, Walker, and Wilson.

**535 Composition U 3**

(581) W, Sp. 3 cl.

Prereq.: 423.

Creative writing in the small forms. Vedder and Huff.

**560 Beginning Conducting U 3**

(540) A, W, Sp. 3 cl.

Prereq.: 421.

The basic technique of the baton; a syllabus of selected literature and reading assignments will be used as a basis for study. McGinnia and Casey.

**561 General Music in the Elementary School U 5**

(522) A, Sp. 4 cl., 2 lab. hrs.

Prereq.: Professional standing.

Study of music literature, teaching methods, and the role of the music teacher in developing general music programs in the elementary schools. Ramsey and Sexton.

**562 General Music in the Secondary School U 3**

(523) A, Sp. 2 cl., 2 lab. hrs.

Prereq.: Professional standing.

Study of teaching practices and music literature suitable for general music classes in the secondary schools. Ramsey.

**563 Instrumental Music in the Schools U 5**

(541) A, W. 4 cl., 2 lab. hrs.

Prereq.: Professional standing.

The role of instrumental music in public education, techniques of teaching instrumental music, and materials appropriate to the needs of elementary and secondary school students. Wilson and Benner.

**564 Choral Music in the Secondary School U 3**(524) *W, Sp. 2 cl., 2 hrs. lab.**Prereq.: Professional standing.*

Fundamentals of teaching choral music and materials appropriate to the choral music program in the secondary school. *Simmons.*

**593 Individual Studies U G 1-5**(650) *Su, A, W, Sp.**Prereq.: Permission of instructor.*

Individual studies in specified problems in the field of music.

**594 Special Group Studies U 1-5***Su, A, W, Sp.**Prereq.: Permission of instructor.**Repeatable to a maximum of 9 cr. hrs.*

Supervised group studies of special problems.

**601 Applied Music U 1, 2, or 4***Prereq.: 501.*

*Open to other qualified students within the limits of instructional facilities by permission of Director of School of Music.*

Performance in applied music at the professional level. Instruction in applied music for the purpose of developing musicianship, performance, and a wide reading knowledge of music literature.

Instruction is given in individual lessons of two one-half hour periods each week. In addition, students are required to attend the Studio Classes and Honors Recitals on Tuesday and Thursday at 1:00 p.m. during the 3rd, 5th, 7th, and 10th week of each quarter.

**601.01 Piano**  
*Su, A, W, Sp.*

**601.02 Voice**  
*Su, A, W, Sp.*

**601.03 Strings**  
*Su. (1st term). A, W, Sp.*

**601.04 Woodwinds**  
*Su. (1st term). A, W, Sp.*

**601.05 Brass**  
*A, W, Sp.*

**601.06 Organ**  
*Su, A, W, Sp.*

**601.07 Percussion**  
*A, W, Sp.*

**601.08 Harpsichord**  
*A, W, Sp.*

**601.09 Harp**  
*A, W, Sp.*

**602 Graduating Recital U 1-2**(510) *A, W, Sp.**Prereq.: 501 (12 cr. hrs.).*

Special preparation for the presentation of the applied music graduating recital for the Bachelor of Music degree.

**621\* Analysis: The Classic Period U G 3**(630) *W. 3 cl.**Prereq.: 521 or 243.*

An analytical study of representative works from Classic literature.

**622\* Analysis: The Romantic Period U G 3**(635) *Su, W. 3 cl.**Prereq.: 521 and 243.*

An analytical study of representative works from Romantic literature. *Barnes and Vedder.*

**624\* Band Scoring U G 3**(632) *Su, A. 3 cl.**Prereq.: 524.*

Scoring for the concert band. *Barnes.*

**625\* Orchestra Scoring U G 3**(633) *A. 3 cl.**Prereq.: 524.*

Scoring for the orchestra. *Barnes and Walker.*

**627 Advanced Keyboard Harmony U G 3**(667) *W. 3 cl.**Prereq.: 423.*

Practice in harmonizing melodies, realizing figured bass, improvisation and modulation at the keyboard.

**631 Counterpoint I U G 3**(662) *Su, W. 3 cl.**Prereq.: 531.*

Studies in imitation and invertible counterpoint, applied in the writing of two- and three-part inventions.

**632 Counterpoint II U G 3**(664) *A. 3 cl.**Prereq.: 631.*

Writing of chorale preludes, trio sonata movements and fugal expositions. *Walker.*

**633 Gregorian Chant U G 3**(609) *A. 3 cl.*

A study of the historical background and characteristics of plain-song, including the technical aspects of notation, modes, rhythm, and chironomy. *Kuehefuhs.*

**634 Modal Counterpoint I U G 3**(659) *W. 3 cl.**Prereq.: 521 and 243.*

Counterpoint based on the vocal polyphonic style of the sixteenth century; analysis of representative works and practice in motet writing. *Kuehefuhs.*

**635 Composition U G 3**(681) *Su, A, W, Sp. 3 cl.**Prereq.: 535.**Repeatable to a maximum of 9 cr. hrs.*

Creative writing; analysis, discussion, and employment of devices used in contemporary music. *Barnes and Walker.*

**640\* Music in the Middle Ages U G 3**(613) *A. 3 cl.**Prereq.: 521 or 531, and 243.*

The development of western music through the fourteenth century.



**641\* Music in the Renaissance U G 3**(612) *Su, W. 3 cl.**Prereq.: 521 or 531, and 243.*

The development of musical styles from Dufay through Palestrina and Lassus. *Warner.*

**642\* Music in the Baroque Period U G 3**(611) *Su, Sp. 3 cl.**Prereq.: 521 or 531, and 243.*

The development of musical styles from Monteverdi through Bach. *Mizter.*

**643†\* Music in the Classic Period U G 3**(607) *A. 3 cl.**Prereq.: 521 or 531, and 243.*

Vocal and instrumental music of the middle and late eighteenth century. *Warner.*

**644†\* Music in the Romantic Period U G 3**(601) *W. 3 cl.**Prereq.: 521 or 531, and 243.*

The music of the Romantic period in Germany and France.

**645 Modern Music U G 3**(603) *Su. 3 cl.**Prereq.: 521 or 531, and 243.*

Major trends in the development of music since 1900. *Hoppin.*

**646 The History of Music in the United States U G 3***Sp. 3 cl.**Prereq.: Junior or senior standing.*

A survey of music in the United States from colonial times until the present.

**647 Individual Composers: Their Lives and Works U G 3**(617) *Su, W. 3 cl.**Prereq.: 521 or 531, and 243.*

A comprehensive study of the works of an individual composer; topic varies from year to year.

**648†\* Chamber Music Literature U G 3**(615) *A. 3 cl.**Prereq.: 521 or 531, and 243.*

A survey of chamber music of the Classic and Romantic periods.

**649†\* Symphonic Literature U G 3**(616) *W. 3 cl.**Prereq.: 521 or 531, and 243.*

A survey of orchestral music from the Classic period to the present. *Mizter.*

**650\* Choral Literature U G 3**(614) *A. 3 cl.**Prereq.: 521 or 531, and 243.*

A survey of choral music from the Renaissance to the present. *Warner.*

**651 Opera Literature U G 3**(602) *Sp. 3 cl.**Prereq.: 521 or 531, and 243.*

A survey of the antecedents of opera and a study of representative works from each of the major periods in the history of opera.

**652 Song Literature U G 3**(717) *Sp. 3 cl.*

The study of song literature including historical and philosophical backgrounds selected to meet the needs of the student, artist, or teacher; program building. *Gilliland.*

**653\* Piano Literature U G 3**(610) *Sp. 3 cl.**Prereq.: 521 or 531, and 243.*

A study of the piano sonata and other characteristic forms from the pre-piano period to the present time. *Haddad and Tetley-Kardos.*

**654\* Organ Literature U G 3**(604) *Sp. 3 cl.**Prereq.: 521 or 531, and 243.*

A comprehensive survey from the earliest compositions to the works of present-day composers. *Held.*

**660 Advanced Conducting (Instrumental) U G 3**(643) *Su. (1st term). Sp. 3 cl.**Prereq.: 521 and 560.*

This course aims to develop the power to interpret the larger forms of instrumental literature and to read from full score. *McGinnis.*

**661 Advanced Conducting (Vocal) U G 3**(646) *Su. (1st term). W. 3 cl.**Prereq.: 521 and 560.*

This course aims to develop the power to interpret the larger forms of choral literature and to read from full score. *Casey.*

**680 Collegium Musicum U G 2**(650Z) *A, W, Sp.*

Study and performance of music from the Medieval, Renaissance, and Baroque periods; practical study of early musical instruments. *Main.*

**681 Liturgies U G 3**(670) *W. 3 cl.*

A study of the historic liturgies of the church as a background for the work of the church musician; contemporary movements in liturgical practice. *Held.*

**682 Hymnology U G 3**(672) *A. 3 cl.**Prereq.: 423 or permission of instructor.*

An historical survey of Christian hymnody; consideration of criteria for judging texts and tunes with regard to artistic quality and liturgical suitability. *Held.*

**683 Techniques and Materials for Church Choirs U G 3**(671) *Sp. 3 cl.*

A study of anthem materials, chants and propers, with consideration of programming and performance. *Held.*

**684 Field Experience in Church Music U 2**(576) *A, W, Sp.**Prereq.: 560 and 683, or concur. 683.**Repeatable to a maximum of 6 cr. hrs.*

Supervised experience in the actual church situation. *Held.*

- 693 Individual Studies** U G 1-5  
*Su, A, W, Sp.*  
*Prereq.: Permission of instructor.*  
*Repeatable to a maximum of 15 cr. hrs.*

Individual studies in specified problems in the field of music.

- 694 Special Group Studies** U G 1-5  
*Su, A, W, Sp.*  
*Prereq.: Permission of instructor.*  
*Repeatable to a maximum of 15 cr. hrs.*

Supervised group studies of special problems in the field of music.

- 711 Theory Pedagogy** U G 3  
*(719) Su. (1st term). 5 cl.*  
*Prereq.: Mus. 4th yr. standing.*

The teaching of music theory in colleges and secondary schools. *Walker.*

- 786 Introduction to Bibliographic Method** U G 3  
*(620) Su, A. 3 cl.*  
*Prereq.: 521 or 531, and 243.*

The collection, examination and documentation of information about music; including general as well as music library materials. *Mizter.*

- 790 Problems in Vocal Music Education** U G 1-5  
*(747) Su, A, W, Sp.*  
*Prereq.: Permission of instructor.*  
*Repeatable to a maximum of 10 cr. hrs.*

Study of problems encountered in the teaching and supervising of vocal music. *Schneider.*

- 791 Problems in Instrumental Music Education** U G 1-5  
*(749) Su, A, W, Sp.*  
*Prereq.: Permission of instructor.*  
*Repeatable to a maximum of 10 cr. hrs.*

Study of problems encountered in teaching, supervising, and organization of the instrumental music program. *Schneider.*

- 792 Choral Problems** U G 1-5  
*(748) A, W, Sp.*  
*Prereq.: Permission of instructor.*  
*Repeatable to a maximum of 10 cr. hrs.*

Study of the problems encountered in developing choruses and church choirs.

- 793 Individual Studies** U G 1-5  
*Su, A, W, Sp.*  
*Prereq.: Permission of instructor.*  
*Repeatable to a maximum of 15 cr. hrs.*

Individual studies in specified problems in the field of music.

- 794 Special Group Studies** U G 1-5  
*Su, A, W, Sp.*  
*Prereq.: Permission of instructor.*  
*Repeatable to a maximum of 15 cr. hrs.*

Supervised group studies of special problems in the field of music.

- 801 Applied Music** G 1, 2, or 4  
*(709) Prereq.: Placement exam.*

Open to other qualified students within the limits of instructional facilities by permission of Director of School of Music.

A specialized and intense study of applied music literature and the techniques of performance.

Instruction is given in individual lessons of two one half-hour periods each week or the equivalent.

- 801.01 Piano**  
*Su, A, W, Sp.*

- 801.02 Voice**  
*Su, A, W, Sp.*

- 801.03 Strings**  
*Su. (1st term). A, W, Sp.*

- 801.04 Woodwinds**  
*Su. (1st term). A, W, Sp.*

- 801.05 Brass**  
*A, W, Sp.*

- 801.06 Organ**  
*Su, A, W, Sp.*

- 801.07 Percussion**  
*A, W, Sp.*

- 801.08 Harpsichord**  
*A, W, Sp.*

- 801.09 Harp**  
*A, W, Sp.*

- 811 Piano Pedagogy** G 3  
*(720) Su. (1st term). 5 cl.*

*Prereq.: Mus. graduate standing and minimum of 6 cr. hrs. of applied study in piano.*

An analysis of the principles and practices current in the teaching of piano. *Rast and Haddad.*

- 812 Vocal Pedagogy** G 3  
*(721) W. 5 cl.*

*Prereq.: Mus. graduate standing and minimum of 6 cr. hrs. of applied study in voice.*

An analysis of the principles and practices current in the teaching of voice. *Gilliland.*

- 813† String Instrument Pedagogy** G 3  
*(722) Su. (1st term). 5 cl.*

*Prereq.: Mus. graduate standing and minimum of 6 cr. hrs. of applied study in string instruments.*

An analysis of the principles and practices current in the teaching of strings. *Culver.*

- 814† Woodwind Instrument Pedagogy** G 3  
*(723) Su. (1st term). 5 cl.*

*Prereq.: Mus. graduate standing and minimum of 6 cr. hrs. of applied study in woodwind instruments.*

An analysis of the principles and practices current in the teaching of woodwinds. *Wilson.*



- 815 Brass Instrument Pedagogy G 3  
(724) Su. (1st term). 5 cl.

Prereq.: Mus. graduate standing and minimum of 6 cr. hrs. of applied study in brass instruments.

An analysis of the principles and practices current in the teaching of brass instruments. Evans.

- 821 Advanced Analysis: The Classic Period G 3

(730) A. 3 cl.

Prereq.: 621 or 622.

An analytical study of selected major works from the Classic literature. Barnes.

- 822 Advanced Analysis: The Romantic Period G 3

(731) W. 3 cl.

Prereq.: Two of the following courses: 621, 622, 821.

An analytical study of selected major works from the Romantic literature. Barnes.

- 823 Advanced Analysis: Post-Romantic to Modern Music G 3

(732) Sp. 3 cl.

Prereq.: 821 or 822.

Analysis of selected works reflecting the evolution from the post-romantic period to contemporary styles. Walker.

- 826 Development of Music Theory I G 5

(750) A. 3 cl.

A study of the principal treatises on music theory before 1400. Phelps.

- 827 Development of Music Theory II G 5

(751) W. 3 cl.

A study of the principal treatises on music theory from 1400 to 1700. Phelps.

- 828 Development of Music Theory III G 5

(752) Sp. 3 cl.

Critical study of music and theory texts from 1700 to 1900. Phelps.

- 829 Contemporary Theories of Music G 3

(753) Sp. 3 cl.

Prereq.: Mus. graduate standing.

Fundamental concepts of theory construction and experimental verification of contemporary theories of music. Poland.

- 831† Contrapuntal Techniques G 3

(765) Sp. 3 cl.

Prereq.: 631 or 632.

Analysis and stylistic writing of canons, invertible counterpoint, and variations. Walker.

- 832\* Fugue G 3

(766) Sp. 3 cl.

Prereq.: 632.

Detailed study of the fugue; writing of three-voice and four-voice fugues. Walker.

- 833 Contrapuntal Techniques G 3

(850N) A.

Prereq.: 621 and 625 or permission of instructor.

Contrapuntal techniques in the works of twentieth-century composers. Walker.

- 834 Modal Counterpoint II G 3

(760) Sp. 3 cl.

Prereq.: 634.

Advanced counterpoint based on the vocal polyphonic style of the sixteenth century. Kushefuhs.

- 835 Advanced Composition G 3

(780) Su, A, W, Sp.

Prereq.: 2 qtrs. of 635 or equiv.

Creative writing in the large forms at an advanced level. Barnes and Walker.

- 836 Musical Uses of Electronic Devices G 3

(694) A. 3 cl.

Prereq.: Physics 501 or equiv.

Characteristics and uses of electronic devices for compositional, analytic, and experimental purposes in music. Poland.

- 837 Electronic Composition G 3

W, Sp. 3 cl.

Prereq.: 836, 2 qtrs. of 635.

Repeatable to a maximum of 6 cr. hrs.

Creative writing employing electronic sound sources. M. Barnes, Phelps, and Walker.

- 838 Seminar in Experimental Music G 3

(795) W, Sp. 3 cl.

Prereq.: 836.

The application of electronic devices to analytical and experimental problems in music. Phelps and Poland.

- 841† Studies in Medieval Music G 5

(784) A. 3-5 cl.

Problems and research in music before 1400. Hoppin.

- 842† Studies in Renaissance Music G 5

(785) W. 3-5 cl.

Problems and research in music between 1400 and 1600. Mixer.

- 843† Studies in Baroque Music G 5

(786) Sp. 3-5 cl.

Problems and research in music between 1600 and 1750. Livingston.

- 844\* Studies in Classic Music G 5

(787) A. 3-5 cl.

Problems and research in music of the late eighteenth century.

- 845\* Studies in Romantic Music G 5

(788) W. 3-5 cl.

Problems and research in music of the nineteenth century. Hoppin.

- 846\* Studies in Modern Music G 5

(789) Su, Sp. 3-5 cl.

Problems and research in music of the twentieth century.

- 847 Notation to 1300 G 5

(702) A. 3 cl.

Prereq. or concur.: 640.

A study of neumes, the development of staff and square notation, primitive systems, rhythmic modes, Franconian notation, and the innovations of Petrus de Cruce. Mixer.

**848 Notation of Fourteenth and Fifteenth Centuries G 5**

(703) W. 3 cl.

Prereq.: 847.

A study of Ars Nova Notation, Mannered Notation, and the transition to white notation. *Hoppin*.

**849 Notation of the Late Fifteenth and Sixteenth Centuries G 5**

(704) Sp. 3 cl.

Prereq.: 848.

The study of proportions, keyboard notations, and lute tablatures.

**850\* The History of Performance Practices G 5**

(701) Sp. 3 cl.

A study of primary sources pertaining to contemporary attitudes and practices in the performance of music from the Middle Ages to the present. *Livingston*.

**851†\* Musical Sources and Historiography G 5**

(707) Sp. 3 cl.

Prereq.: 786.

A study of music historiography, supplemented by the examination of musical documents from each of the periods of music history. *Mixter*.

**852 The Literature of the Piano G 3**

Prereq.: Admission to the M.M. curriculum for piano major or permission of instructor.

An intensive survey of the major literature for the piano with attention to forms and performance traditions.

**852.01 The Literature of the Piano I**

A. 3 cl.

**852.11 The Literature of the Piano II**

W. 3 cl.

**852.21 The Literature of the Piano III**

Sp. 3 cl.

**860 Basic Concepts in Music Education G 3**

(621) Su. (2nd term). Sp. 3 cl.

Prereq.: Ed. 586 or 587.

The principles of music education and of the educational and cultural objectives derived from related disciplines which give direction and purpose to the music education program. *Schneider and Cady*.

**861 Principles of Music Learning G 3**

(656) Su. (1st term). A. 3 cl.

Analysis of the learning process in music as related to problems of music instruction in the public school. *Schneider*.

**862†\* Principles and Practices in Elementary School Music G 3**

(622) Su. 5 cl.

Analysis and appraisal of the music program in elementary schools including the relationship of music to the total school program. *Ramsey*.

**863 Literature of Elementary School Music G 3**

(623) Su. (1st term). 3 cl.

A critical study of folk and art music of various cultures and historic periods for the general vocal and listening activities of the integrated curriculum. *Ramsey*.

**864 Principles and Practices in Vocal Music Education G 3**

(624) Su. (1st term). 5 cl.

Analysis and appraisal of the organization, purpose, and development of the vocal music program in secondary schools. *Simmons*.

**865†\* Literature for Vocal Music Education G 3**

(625) Su. 5 cl.

A study of vocal literature of various cultures and historic periods for use with choral groups in the secondary music program. *Simmons*.

**866 Teaching Practices in General Music G 3**

(626) Su. (2nd term). 3 cl.

Prereq.: Permission of instructor.

Study of current concepts in organizing and teaching general music in the secondary school. *Ramsey*.

**867†\* Curricular Trends in General Music G 3**

(627) Su. 5 cl.

Prereq.: 243, Fine Arts 110 or 111.

Analysis and development of programs in general music in which music is taught with reference to other art forms. *Ramsey*.

**868 Principles and Practices in Instrumental Music Education G 3**

(641) Su. (2nd term). 5 cl.

Role of instrumental music in the public schools: relationship to society and the total music program, historical development, evaluation, and future trends. *Benner and Wilson*.

**869 Literature for Instrumental Music Education G 3**

(642) Su. 5 cl.

Relationship of teaching materials and performance repertory to education objectives: selection of literature, interpretation, rehearsal procedures, conducting problems, attainment of musical understanding through literature. *Wilson and Benner*.

**870 Introduction to Research in Music Education G 3**

(650X) Su. (1st term). W. 3 cl.

*Benner*.**871† Supervision of Music Education Programs G 5**

(712) Su. 5 cl.

A study of specific problems of music supervision with special attention to music program evaluation and curriculum development. *Simmons*.



**872 Administration in Music Education** G 3  
(850C) Sp. 3 cl.  
Prereq.: Permission of instructor.  
Seminar. *Schneider*.

**873 Comparative Music Education** G 3  
(850D) Su. (2nd term). 3 cl.  
Prereq.: Permission of instructor.

An analysis and comparison of music education programs in other countries including the study of curriculum, teaching procedures, and programs of teacher preparation. *Schneider*.

**874 The Development of Music Education** G 3  
(850E) Su. (1st term). 3 cl.  
Prereq.: Permission of instructor.

The development of music education from the early Greek society to the present day tracing major trends and the influence of certain persons. *Cady*.

**875 Psychological Factors in Music Education** G 3  
(850I) A. 3 cl.  
Seminar. *Schneider*.

**876 Evaluation and Measurement in Music Education** G 3  
W. 3 cl.  
Prereq.: Psychol. 608.  
Seminar. *Schneider*.

**877 Social Factors in Music Education** G 3  
Sp. 3 cl.  
Seminar. *Cady*.

**878 Music Education and the Curriculum** G 3  
(850J) A.  
A study of the application of music education in the school curriculum. *Schneider and Cady*.

**879 Music in Higher Education** G 3  
(850K) W.  
*Schneider and Cady*.

**881 Factors in Choral Tone Production** G 3  
(850Q) W. 3 cl.  
A study of choral blend and other vocal techniques.

**899 Interdepartmental Seminar** G 1-5  
A, W, Sp.

**993 Individual Studies** G 1-5  
(890) Su, A, W, Sp.  
Individual research projects not connected with the dissertation.

**994 Advanced Group Studies** G 3-5  
Su, A, W, Sp.  
Repeatable to a maximum of 15 cr. hrs.

**994.01 Seminar in Music Theory**  
(880B)  
*Barnes, Phelps, and Walker*.

**994.02 Seminar in Music Education**  
(880C)  
*Schneider, Cady, and Benner*.

**994.03 Seminar in Music History**  
(881)  
*Livingston and Hoppin*.

**999 Research in Music** G Arr.  
(950) Su, A, W, Sp.  
Research for thesis or dissertation purposes only.

## National Security Policy Studies

Mershon Center for Education in National Security,  
James A. Robinson (Director).

Office: 199 West Tenth Avenue

**693 Individual Studies in National Security Policy** U G 3  
(701) A, W, Sp.  
Prereq.: Permission of instructor.

A special national security topic is assigned to each student for reading and a report.

**702 Introduction to National Security** U G 3-5  
A. 1 cl.  
Prereq.: Permission of instructor.

Examination of approaches taken by various social science disciplines to field of national security; survey of literature in field; identification of major problem areas. *Robinson*.

**785 Research Principles and Techniques in National Security** U G 3-5  
(703) W. 1 cl.  
Prereq.: 702 or permission of instructor.  
Repeatable with permission of instructor to a maximum of 10 cr. hrs.

Examination of particular policy problems and the application thereto of social science analytical techniques. *Robinson*.

**801 Seminar in National Security Research** G 3-5  
Sp. 1 cl.  
Prereq.: 702 or permission of instructor.

For advanced graduate students preparing Master's theses and doctoral dissertations in the field of national security. Formulation and application of social science research designs to specific aspects of national security.

## Naval Science

Office: 179 Navy Annex, Physical Education Building,  
337 West 17th Avenue.

Captain Wehmeyer and Staff.

The sequence of courses is the same for all officer candidate students for the first two years. At the end of the second year, students may apply to specialize in the Marine Corps, in which case there is a variation in course presentation. Naval science courses are open to a limited number of civilian students with permission of the Professor of Naval Science.

Normal sequence of courses is as follows: (Naval Science unless otherwise indicated.)

First Year:	All candidates—141, 142, 143.
Second Year:	All candidates—241, Psychol. 300, (403), 243.
Third Year:	Line candidates—341, 342, 343. Marine candidates—351, 352, 353.
Fourth Year:	Line candidates—441, 442, 443. Marine candidates—451, 452, 453.

### 141 Naval Orientation U 3

(441) A. 3 cl., 1 2-hr. lab.

The basic study of naval lore, covering organization, customs, discipline, vessels of the U.S. Navy, introduction to seamanship, leadership, and tactics.

### 142 Naval History, Part I U 3

(442) W. 3 cl., 1 2-hr. lab.

Prereq.: 141.

The study of Naval History from earliest recorded history up to World War I, with particular emphasis on the principles of war in influence of sea power upon history.

### 143 Naval History, Part II U 3

(443) Sp. 3 cl., 1 2-hr. lab.

Prereq.: 142.

The continued study of Naval History from the beginning of World War I to the present time.

### 241 Naval Weapons, Part I U 3

(441) A. 3 cl., 1 2-hr. lab.

Prereq.: 143 or permission of department chairman.

A broad basic study of naval gunnery, including the fire control problem; an introduction to anti-submarine warfare.

### 243 Naval Weapons, Part II U 3

(443) Sp. 3 cl., 1 2-hr. lab.

Prereq.: 241.

More advanced study of Naval Weapons and their employment, including guided missiles and nuclear weapons, and a basic study of the technology of space.

### 341 Naval Operations U 3

(641) A. 3 cl., 1 2-hr. lab.

Prereq.: 243 or completion of summer camp.

A study of fleet operations, including tactics, tactical communications. Rules of the Nautical Road, and the principles of relative motion.

### 342 Naval Operations and Introduction To Navigation U 3

(642) W. 3 cl., 1 2-hr. lab.

Prereq.: 341.

A study of the Naval Communications system, shipboard organization, administration and the electronic and dead reckoning methods of marine navigation.

### 343 Celestial Navigation U 3

(643) Sp. 3 cl., 1 2-hr. lab.

Prereq.: 342.

The determination of position by celestial methods of navigation.

### 351 Evolution of the Art of War, Part I U 3

(651) A. 3 cl., 1 2-hr. lab.

Prereq.: 243 or completion of summer camp.

A study of the evolution of weapons and tactics, illustrating the principles and variables of war used in certain battles from Alexander through the Mexican War.

### 352 Evolution of the Art of War, Part II U 3

(652) W. 3 cl., 1 2-hr. lab.

Prereq.: 351.

A continuation of the study of Evolution of the Art of War from the beginning of the Civil War to the end of World War II.

### 353 Modern Basic Military Strategy and Tactics U 3

(653) Sp. 3 cl., 1 2-hr. lab.

Prereq.: 352.

A survey of modern strategical and tactical principles, and current military developments.

### 441 Naval Engineering U 3

(741) A. 3 cl., 1 2-hr. lab.

Prereq.: 343.

Principles of ship stability and buoyancy in the practice of damage control; theory of construction, installation and operation of a modern naval steam engineering plant.

### 442 Naval Engineering and Introduction to Naval Administration U 3

(742) W. 3 cl., 1 2-hr. lab.

Prereq.: 441.

A study of electricity, naval auxiliary systems and shipboard organization and administration.

### 443 Naval Administration U 3

(743) Sp. 3 cl., 1 2-hr. lab.

Uniform Code of Military Justice; the psychology of human relations and the techniques of leadership; career planning.

### 451 Amphibious Warfare, Part I U 3

(751) A. 3 cl., 1 2-hr. lab.

The history of amphibious warfare and its development from Gallipoli through Korea.

### 452 Amphibious Warfare, Part II U 3

(752) W. 3 cl., 1 2-hr. lab.

A familiarization with the doctrinal techniques and present concepts of amphibious warfare including the planning phase.

### 453 Leadership and the Uniform Code of Military Justice U 3

(753) Sp. 3 cl., 1 2-hr. lab.

Survey of the UCMJ and a study of the psychology of human relationships and techniques of leadership as applied by Marines.



# Nuclear Engineering

Office: 1065 Robinson Laboratory, 206 West 18th Avenue

Professors Glower (Chairman), Fontana, Jones, Pool, and Speiser; Associate Professor Staehle; Adjunct Associate Professors Brunton and Redmond; Assistant Professors Lynch and Swartz.

## 505 Introduction to Nuclear Science U G 3 and Engineering

W, Sp. 3 cl.

Prereq.: Math. 255 and Physics 233, or permission of instructor.

Discussion of nuclear energy and nuclear radiation; sources, methods of utilization, and projections for future engineering uses.

## Corrosion

(See under Met. E. 635.)

## Materials for Nuclear Technology

(See under Met. E. 675.)

## 710 Applied Nuclear Engineering U G 3

A, Sp. 3 cl.

Prereq.: Physics 551 or equiv., Math. 255, Eng. Mech. 420.

Industrial and research applications of radioactive isotopes; thickness and density, food irradiation, direct energy conversion, activation analysis, radioactive tracers, topics in bioengineering.

## 720 Reactor Dynamics and Control U G 3

Sp. 3 cl.

Prereq.: 763, Elec. E. 520 or permission of instructor.

Not open to students with credit for 820.

Nuclear reactor and nuclear reactor system operation; control system performance requirements and control mechanisms; automatic control systems and their performance with transient and with steady state operation.

## Nuclear Power Plants

(See under Mech. E. 726.)

## 743 Nuclear Engineering Laboratory I U G 3

Su, A, Sp. 2 3-hr. labs.

Prereq.: Physics 551 or equiv., Math. 255.

Experimental investigations of nuclear radiation interactions with matter; a discussion and experimental verification of radiation detection and shielding principles.

## 744 Nuclear Engineering Laboratory II U G 3

W, Sp. 2 3-hr. lab.

Prereq.: 743 and/or concur. 763.

Experimental nuclear reactor analysis; understanding of the basic nuclear and reactor parameters and utilizing these fundamental concepts in an economical engineering design.

## 747 Nuclear Instrumentation U G 3

Su, A, W, Sp. 2 cl., 1 3-hr. lab.

Prereq.: 743, Elec. E. 580 or equiv., and Physics 571; or permission of instructor.

Repeatable to a maximum of 9 cr. hrs.

A study of radiation detectors, measuring instruments, block diagrams and circuits; applications to nuclear research and applied measurement systems are discussed.

## 763 Nuclear Reactor Analysis U G 3 (783) A. 3 cl.

Prereq.: Physics 551, Math. 512 or equiv.; concur. Physics 571.

Reactor theory, probability concepts and nuclear cross sections, the multiplication constant and neutron flux, neutron slowing down process, diffusion theory, Fermi Age Theory, homogeneous reactors, heterogeneous reactors, reactor kinetics.

## 765 Analysis of Neutron Chain Reactions U G 3

W. 3 cl.

Prereq.: 763.

The neutron distributions in infinite and finite mediums are analyzed with particular emphasis placed upon asymptotic solutions, space dependent slowing down theory, multigroup slowing down theory, and transport theory.

## 770 Plasmas and Controlled Fusion U G 3

W. 3 cl.

Prereq.: Physics 571, Mech. E. 511 or Physics 742 or equiv.

The Thermonuclear problem; approaches to a stable and sufficiently hot plasma; nuclear reactions, plasma kinetics, diagnostic devices, and engineering problems in research, development, and power production.

## Nuclear Chemical Engineering

(See under Chem. E. 778.)

## 814 Effects of Radiation Interactions in Matter G 3

Su, W. 3 cl.

Prereq.: 12 cr. hrs. in Nuclear E., Physics 723 and 761; or permission of instructor.

Effects of high-energy radiation in liquids, in gases, and in solids; ionization effects, the effect of atomic displacements, and the effect of transmutation of nuclei on mechanical and physical properties of materials; possible applications in nuclear devices.

## 818 Radiation Shielding G 4

A. 3 cl., 1 3-hr. lab.

Prereq.: 12 cr. hrs. in Nuclear E. and permission of instructor.

A classical and quantum-mechanical analysis of radiation interaction processes and shielding principles; microscopic and macroscopic scattering and absorption theory, bremsstrahlung and fluorescence, buildup, and optimum shield design utilizing high speed computers.

## 822 Non-linear Neutron Kinetics G 3

A. 3 cl.

Prereq.: 720.

Non-linear dynamics of steady state and pulsed nuclear reactor systems; stability criteria, start-up and shut-down transients, applications to thermal and fast reactors.

## 845 Advanced Laboratory Studies G 1-6

Su, A, W, Sp.

Prereq.: 743 or 744, and permission of instructor.

Experimental treatment of advanced nuclear engineering concepts.

**856 Advanced Nuclear System Design Concepts G 4***Sp. 3 cl., 3-hr. lab.**Prereq.: 726, concur. 864.*

Investigation of advanced-converter-reactor design concepts, design problems and basic concepts of thermal and fast breeder reactors, design and economics study of a total reactor system.

**864 Advanced Nuclear Reactor Analysis G 5***(884) W. 5 cl.**Prereq.: 783, 820, Math. 802, Physics 621 or 721.*

Neutron transport theory, three dimensional multigroup reactor analysis utilizing perturbation theory, new reactor concepts. A high-speed digital computer is utilized to facilitate analysis.

**881 Nuclear Engineering Seminar G 1***(890) A, W, Sp. 1 cl.**Prereq.: Graduate standing in Nuclear E.**Repeatable to a maximum of 4 cr. hrs.*

Current topics in Nuclear Engineering.

**885 Advanced Topics G 1-5***(898) Su, A, W, Sp.**Prereq.: Permission of instructor.**Repeatable to a maximum of 10 cr. hrs.*

An advanced treatment of some field of nuclear engineering of current interest not presently covered in other courses. Topic to be announced for each quarter. *Glomer.*

**999 Research in Nuclear Engineering G Arr.***(850) Su, A, W, Sp.*

Research for thesis or dissertation purposes only.

## Nurse Anesthesiology

(School of Allied Medical Professions)

Office: 632 University Hospital, 410 West Tenth Avenue  
Instructor Lang (Division Director); Professor Hamelberg.

**501 Introduction to Anesthesia P 15***Su, A, W, Sp.**Prereq.: Graduation from an accredited School of Nursing.**Not open to students with credit for 401.*

Education and training of nurses in the field of anesthesia; management of technical aspects of anesthesia under physician supervision.

**502 Clinical Anesthesia P 15***Su, A, W, Sp.**Prereq.: 401 or 501.**Not open to students with credit for 402.*

Advanced study of anesthetic agents, technique, pharmacology, and physiology with clinical applications.

**503 Pediatric Anesthesia P 15***Su, A, W, Sp.**Prereq.: 402 or 502.**Not open to students with credit for 403.*

Advanced study of introductory and clinical anesthesia as applicable to pediatric anesthesia; training is received at the affiliated Children's Hospital.

**504 Advanced Anesthesia I P 15***Su, A, W, Sp.**Prereq.: 403 or 503.**Not open to students with credit for 404.**Repeatable to a maximum of 45 cr. hrs.*

Emphasis of study will be on more difficult anesthetic procedures and in patients with difficult disease processes.

**505 Advanced Anesthesia II P 15***Su, A, W, Sp.**Prereq.: 404 or 504.**Not open to students with credit for 405.*

Instruction in the care of the patient undergoing cardiopulmonary bypass and thoracic anesthesia.

**506 Advanced Anesthesia III P 15***Su, A, W, Sp.**Prereq.: 405 or 505.**Not open to students with credit for 406.*

Instruction in the care of the patient undergoing neurosurgery.

## Nursing

Office: 145 School of Nursing Building, 1585 Neil Avenue  
Professors Newton (Director) and Shirk; Associate Professors Bellam, Buckeridge, Chambers, Harvey, Leazenbee (Emeritus); Lewis, Pease, Price, Sump, Thomas, and Wittmeyer; Assistant Professors Breeze, Clancy, Clark, Colver, Currey, Daubanmire, Dilley, Docter, Fair, Fey, Hickey, Johnston, Kruman, Kruse, Martin, Mourad, Pierce, Polcyn, Roller, Scheyer, Schoenlaub, Schwartz, Shaw, Smelko, Sorensen, Suhre, Wallace, Wenger, and Williams.

**201 Introduction to Clinical Experiences for Medical Technologists U 2***(563) Su. 2 cl.**Prereq.: Med. Tech. 4th yr. standing.*

This course acquaints the medical technology student with hospital and health center functioning and helps her develop selected patient-care skills. *Price and Staff.*

Open only to students registered in the School of Nursing:

**301 Fundamentals of Nursing U 6***(539) A. 3 cl., average of 12 hrs. clinical study per week.**Prereq.: Anat. 200, Microbiol. 509.*

Study of basic needs of hospitalized adult patients and the functions of the nurse in meeting these needs.

**310 Medical Nursing I U 8***(547) W, Sp. 4 cl., 16 hrs. clinical study.**Prereq.: 301.*

The nursing care of adult patients treated medically; emphasis on care required by patients with cardiovascular and gastrointestinal problems and diabetes mellitus.



**311 Surgical Nursing I U 8**  
(548) *W, Sp. 4 cl., and average of 16 hrs. clinical study per week.*

*Prereq.: 301.*

Study of the care of adult patients who have common surgical procedures and require minimal rehabilitation.

**350 Problem Solving in Nursing U 6**

(604) *Su, A, W, Sp. 3 cl., and average of 12 hrs. clinical study per week.*

*Prereq.: 310, 311; Engl. 103, Microbiol. 509, Physiol. 311, Psychol. 100, Soc. 101.*

The process of planning, providing, and evaluating nursing care of selected patients.

**410 Medical Nursing II U 8**

(647) *Su, A, W, Sp. 4 cl., and average of 16 hrs. clinical study per week.*

*Prereq.: 310, 311.*

Nursing care of patients with long-term illness and those requiring intensive rehabilitation; emphasis on patients with problems associated with respiratory, musculoskeletal and nervous systems.

**411 Surgical Nursing II U 8**

(648) *Su, A, W, Sp. 4 cl., and average of 16 hrs. clinical study per week.*

*Prereq.: 310, 311.*

Study of the care of adult patients whose surgical intervention requires short or long term changes in living.

**420 Maternity Nursing U 8**

(613) *Su, A, W, Sp. 4 cl., and average of 16 hrs. clinical study (ward conf., discussion groups, nursing lab., clinical practice, and human relations lab.).*

*Prereq.: 310, 311.*

Knowledge, understanding, and skill necessary in providing nursing care to the mother in the antepartal, intrapartal, and postpartal periods in one quarter.

**421 Pediatric Nursing U 8**

(614) *Su, A, W, Sp. 4 cl., and average of 16 hrs. clinical conf., and field trips.*

*Prereq.: 310, 311, and Home Ec. 363.*

Physiological and psychological changes occurring in the growing child and the impact of illness or handicap on the child, the family and community.

**530 Public Health Nursing U 5**

(617) *Su, A, W, Sp. 5 cl.*

*Prereq.: 410, 411, 420, 421.*

*Not open to students with credit for 602 and 639.*

A study of the development and trends of public health nursing and the basic principles underlying its practice.

**531 Public Health Nursing U 8**  
**Field Experience**

(619) *Su, A, W, Sp.*

*Prereq. or concur.: 530, Prev. Med. 618.*

Supervised experience in a public health agency which offers a generalized program emphasizing family health.

**540 Nursing Study of The U G 8**  
**Psychiatric Patient**

(663) *Su, A, W, Sp. 4 cl., and average of 16 hrs. clinical study per week.*

*Prereq.: 410, 411, 420, 421.*

Nursing study of the psychiatric patient as an interpersonal, problem-solving process: (conferences, discussions, clinical practice).

**550 Leadership and Management U G 8**  
**in Nursing**

(676) *Su, A, W, Sp. 3 cl., and 20-24 hrs. clinical study per week.*

*Prereq.: 410, 411, 420, 421.*

Effective team member and team leader experiences; observation and selected experiences in unit management and guided study of a nursing problem; (conferences discussions, clinical practice, human relations laboratory).

**551 Occupational Orientation to U G 10**  
**Nursing**

(677) *Su, A, W, Sp. 4 cl., and 24 hrs. clinical study per week.*

*Prereq.: 410, 411, 420, 421.*

Guided practice of professional nursing; requirements and responsibilities in present day practice, job opportunities, and professional relations.

**561 History of Nursing U 3**

(649) *A, W, Sp. 3 cl.*

*Prereq.: Nurs. 3rd yr. standing.*

The effect of religious, military, secular, and educational influences on the development of nursing.

**685 Field Instruction in Nursing U G 4-7**

(746) *A, W, Sp. 2 cl., 4 hrs. clinical experience per cr. hr.*

*Prereq.: Permission of advisor.*

*The first qtr. of registration in this course must be for 4 cr. hrs.*

Application of scientific method of study to selected nursing and teaching problems; includes observation and participation in clinical situation, conferences, library study, field trips, and written reports.

685.03 Supervision and Administration

*Sump.*

685.04 Teaching

*Pease.*

**752 Administration of Nursing U G 5**  
**Services**

*Su. 4 cl. and 3 hr. planned observations.*

*Prereq. or concur.: Graduate standing in nurs. service administration curriculum, 751.*

Exploration of major problems of nursing administration at the top administrative levels; includes observations of administrative situations, conferences, field trips and written reports. *Sump.*

**793 Individual Studies in Nursing U G 1-5**

(701) *Su, A, W, Sp.*

*Prereq.: Permission of instructor.*

Reading, conferences, and minor investigation by an individual student who wishes to study a particular nursing problem intensively.

**802 Research Development in G 3**  
**Nursing**

*A, W. 3 cl.*

*Not open to students with credit for 785.*

A seminar on the status and scope of research in nursing; written reports and comparison of various types of research studies will be required. *Shirk and Pierce.*

- 810 Medical-Surgical Nursing** G 5  
(740) A. W. 3 cl., 8 lab.  
*Not open to students with credit for 710.*

Intensive study of medical-surgical problems; independent study and participation in conferences and seminars. Chambers and Bellam.

- 811 Medical-Surgical Nursing** G 5  
(741) W. Sp. 3 cl., 8 lab.  
*Prereq.: 810.*

*Not open to students with credit for 711.*

Continuation of 810. Chambers and Bellam.

- 812 Medical-Surgical Nursing** G 5  
Sp. 3 cl., 8 lab.  
*Prereq.: 811.*

Continuation of 811. Chambers and Bellam.

- 840 Psychiatric Nursing** G 5  
(736) A. 3 cl., 8 lab.  
*Not open to students with credit for 740.*

Theoretical principles of human behavior, nature of nursing problems, "field" in which nursing takes place and psychotherapeutic nursing intervention systematically investigated; seminars, conferences, individual study. Lewis.

- 841 Psychiatric Nursing** G 5  
(737) W. 3 cl., 8 lab.  
*Prereq.: 840.*

*Not open to students with credit for 741.*

Continuation of 840. Lewis.

- 842 Psychiatric Nursing** G 5  
Sp. 3 cl., 8 lab.  
*Prereq.: 841.*

Continuation of 841. Lewis.

- 850 Administration of Nursing Service** G 5  
A. 5 cl.  
*Prereq.: 812 or 842, Bus. Org. 500.*

*Not open to students with credit for 750.*

Study of the fundamentals of planning, organizing, staffing, directing, and controlling nursing service departments. Sump.

- 851 Administration of Nursing Service** G 5  
W. 5 cl.  
*Prereq.: 850.*

*Not open to students with credit for 751.*

Continuation of 850 with exploration of major problems of nursing service administration at the supervisory level. Sump.

- 870 Curriculum Development** G 5  
(810) W. 5 cl.  
*Prereq.: 812 or 842, Psychol. 560 or 600 and Ed. 637 and 939 or 941.*

*Not open to students with credit for 770.*

Study of philosophy of nursing education as synthesized from theory of learning, philosophies of nursing and education; curriculum development in nursing. Pease.

- 871 Methods of Teaching Nursing** G 4  
(796) Su, Sp. 4 cl.  
*Prereq. or concur.: Ed. 637, Nurs. 870 recommended.*

*Not open to students with credit for 771.*

Instructional planning for courses in clinical nursing with opportunities to develop teaching-learning units and tools to assess learning outcomes. Pease.

- 994 Special Group Studies in Nursing** G 2-5

Su, A. W. Sp.

*Prereq.: Permission of instructor.*

*Repeatable to a maximum of 5 cr. hrs.*

Reading and group conferences for graduate students who desire to study a particular trend in nursing or nursing education.

- 999 Research in Nursing** G Arr.

(950) Su, A. W. Sp.

Research for thesis purposes only.

## Obstetrics and Gynecology

Office: N-635 University Hospital, 410 West Tenth Avenue

Professors Ullery (Chairman), Hollenbeck, and Meiling; Associate Professors Besch, Copeland, Holzappel, Stevens, Teteris, Vorys, and Williams; Assistant Professors Anderson, Crawford, de Neef, Neri, Rigsby, Russell, and Trelford; Instructors Dickey and Portman.

### The Comprehensive Evaluation of the Patient

(See Med. 601, 602, 603.)

[Offered in cooperation with the Departments of Med., Ophthalm., Otol., Ped., Phys. Med., Prev. Med., Psychiatry, Radiol., and Surg.]

[Panel discussions by staff and representatives of allied fields of selected demonstrated patients, correlating anatomy, physiology, biochemistry, and pathology with current philosophy, ideas, and attitudes. Ullery and Staff.]

- 737 Clinical Obstetrics and Gynecology** P 6 or 12

2 months, offered in July, Sept., Nov., Jan., Mar., or May.

*Prereq.: Med. 3rd yr. standing.*

*Must repeat to 12 cr. hrs.*

Normal and abnormal obstetrics and diseases of the female generative tract; management and philosophy of current therapy; supervised inpatient and outpatient experience.

- 740 Fetus and Newborn** P 6

1 month, offered Aug., Dec., May.

*Prereq.: 737, Ped. 715.*

Reproduction biology and human development; the fetal-maternal axis and the product of conception; supervised clinical training and service.

- 745 Reproduction Endocrinology and Infertility** P 6

1 month, offered Sept. and Mar.

*Prereq.: 737.*

Selective endocrinologic aspects of the specialty; correlation of biochemical, histochemical and cytologic aspects with clinical problems.



**751 Obstetric and Gynecologic Specialties P 6***1 month, offered all months.**Prereq.: 757.**Repeatable by permission of instructor.*

Instruction in the newer and more advanced techniques of diagnosis and therapy which would have been neither feasible nor possible on the wards nor in the clinics.

**751.01 Obstetric Specialties****751.02 Gynecologic Specialties****793 Individual Studies in Obstetrics and Gynecology***1 month, offered all months.***P 6***Su, A, W, Sp.***G 2-5***Prereq.: Permission of chairman.**Repeatable to a maximum of 18 cr. hrs. for professional credit.*

Clinical, laboratory, conference, and library work in Obstetrics and/or Gynecology.

**793.01 Obstetric Specialties****793.02 Gynecologic Specialties****799 Residency in Obstetrics and Gynecology P 18***Su, A, W, Sp.**18 months full time, beginning July 1.**Prereq.: Appointment as Resident, University Hospital.**Repeatable to a maximum of 360 cr. hrs.*

Rotation through obstetric and gynecologic sub-specialties, inpatient and outpatient services; supervisory and teaching responsibility in the patient-care team; rounds and conferences.

**900 Obstetric and Gynecologic Pathology G 2-5***Su, A, W, Sp.**Prereq.: Permission of instructor.**Repeatable to a maximum of 8 cr. hrs.*

Laboratory, conference, and library work; study of current pathological specimens with emphasis upon special investigation. *Ullery, Meiling, Hollenbeck, Holzaepfel, Williams, Boutselis, and Beach.*

**999 Research in Obstetrics and Gynecology G Arr.***(950) Su, A, W, Sp.**Research for thesis purposes only.***201 Occupational Therapy Orientation U 1***(401) A. 2 cl.**Prereq.: Registration in Oc. Ther. curriculum.*

The scope of occupational therapy is presented with its relationship to broad fields of education and medicine and to other allied health professions. *Locher, Grant, and Ross.*

**202 Occupational Therapy Orientation U 1***(402) W. 2-hr. lab.**Prereq.: 201.**Continuation of 201.***203 Occupational Therapy Orientation U 1***(403) Sp. 2-hr. lab.**Prereq.: 202.**Continuation of 202.***204 Occupational Therapy U 1***(404) Su, A, W, Sp. 2-hr. lab.**Prereq.: 203.**Additional preclinical experiences. Locher.***301 Departmental Organization U 2***A. 2 cl.**Prereq.: Registration in Oc. Ther. curriculum.*

Occupational therapy relationships within the institution and community; a study in program planning based on treatment methods including budgets, equipment, supplies, records, and staffing implications. *Worley.*

**403 Occupational Therapy U 8***(603) Sp. 5 cl., 3 2-hr. lab.**Prereq.: Physiol. 311, Phys. Ther. 303 or 482 and 403 or 530.*

Neurological and orthopedic medical information correlated with treatment principles and methods through activity in cases of loss of muscle power, limited joint motion, and amputation. *Grant, Allen, Worley, visiting neurologist, and orthopedists.*

**404 Occupational Therapy U 8***(604) W. 5 cl., 3 2-hr. lab.**Prereq.: Psychol. 330.*

Information, discussion, and demonstration of medical problems, and use of activities, self and groups in the total treatment program of neuropsychiatric and mentally deficient patients. *Locher, Buckey, and psychiatrists.*

**505 Occupational Therapy U 5***(605) A. 2 cl. 3 2-hr. labs.**Prereq.: 403.**Not open to students with credit for 405.*

Principles and methods of treatment in cases of lack of coordination; adaptation of equipment to meet activity needs of the individuals so involved. *Grant and Allen.*

**506 Occupational Therapy U 2***(606) A. 2 cl.**Prereq.: 404.**Not open to students with credit for 406.*

Advanced theory of occupational therapy in psychiatry. *Buckey.*

## Occupational Therapy

*(School of Allied Medical Professions)*

Office: A348 Starling Loving Hall, 320 West Tenth Avenue

Professor Locher (Division Director); Associate Professor Heermans; Assistant Professors Allen, Buckey, and Roberts; Instructors Grant, Ross, and Snyder.

**200 Survey of Occupational Therapy U 1***(500) Su, A, W. 1 cl.*

The development of occupational therapy and survey of its relationship, history, standards, trends, applications, personnel, opportunities, and problems. *Locher.*

**507 Occupational Therapy U 8**

(602) A. 5 cl., 3 2-hr. labs.

Prereq.: 403 and 404.

Not open to students with credit for 407.

Medical information correlated with theory of treatment through activity for general medical and surgical conditions, including tuberculosis, cardiac, geriatric, pediatric, visual, and auditory disabilities. *Ross and visiting physicians.*

**520 Clinical Practice in Occupational Therapy U 6**

(620) Su, A, W, Sp.

Prereq.: An average pt. hr. of 2.25 in all professional courses and permission of divisional director.

Not open to students with 18 cr. hrs. for 420.

Repeatable to a maximum of 18 cr. hrs.

(Initial registration in this course may come in the summer following completion of the ninth qtr. of the professional program and may be either for one term or the qtr.)

A practical experience in application of the principles and functions of occupational therapy in selected hospitals, rehabilitation centers, day care facilities, and convalescent homes.

**595 Occupational Therapy Seminar U 1**

(615) W. 1 cl.

Prereq.: Major standing in Oc. Ther.

Not open to students with credit for 415.

Discussion and demonstration of current methods and problems in occupational therapy. *Heermans.*

**596 Occupational Therapy Seminar U 1**

(616) Sp. 1 cl.

Prereq.: 415 or 595.

Not open to students with credit for 416.

Continuation of 595.

**597 Occupational Therapy Seminar U 1**

(617) A. 1 cl.

Prereq.: 416 or 596.

Not open to students with credit for 417.

Continuation of 596.

## Ophthalmology

Office: N-350 University Hospital, 410 West Tenth Avenue

Professors Makley (Chairman), Blackwell, Havener, and Perry; Associate Professors Andrew, Battles, Moses, Keates, Quinn, and Suie; Assistant Professors Barton, Bitonte, Bontley, Bredemeyer, de la Motte, Kape-tansky, Letson, Long, Magnuson, Sage, Stephan, and Stine.

### The Comprehensive Evaluation of the Patient

(See Med. 601, 602, 603.)

[Offered in cooperation with the Departments of Med., Ob. Gyn., Otol., Ped., Phys. Med., Prev. Med., Psychiatry, Radiol., and Surg.]

[A unique presentation in programmed learning of ophthalmoscopic findings as they relate to various systemic disorders.]

**751 Group Studies in Ophthalmology P 1**

1 month, Oct., and Feb.

Prereq.: Med. 4th yr. standing.

Fundamentals of ophthalmology applicable in general practice and in other medical specialties. *Makley.*

**793 Individual Studies in Ophthalmology**

1, 2 or 3 months; offered all months. P 6, 12, 18

Su, A, W, Sp. G 1-5

Prereq.: Permission of chairman.

Repeatable to a maximum of 18 cr. hrs.

Research in division of:

793.01 Ophthalmic Microbiology

793.02 Ophthalmic Immunology

793.03 Ophthalmic Pathology

793.04 Retinal Diseases

**794 Advanced Studies in Ophthalmology P 6, 12, 18**

1 month, offered all months except June.

Prereq.: Med. 3rd or 4th yr. standing.

Repeatable to a maximum of 18 cr. hrs.

Clinical experience in basic ophthalmology to include rotations through the outpatient service and eye ward, conferences and rounds.

**799 Residency in Ophthalmology P 18**

Su, A, W, Sp.

12 months full time, beginning July 1.

Prereq.: Appointment as Resident, University Hospital.

Repeatable to a maximum of 216 cr. hrs.

Rotation through ophthalmology clinical and outpatient services; consultative activities, supervisory and teaching responsibilities in the patient-care team; conferences and rounds.

**850 Seminar in Ophthalmology G 3-5**

(800) A, W, Sp.

Prereq.: Permission of instructor.

Each student is responsible for presenting material at least twice a year; attendance at weekly Grand Round on the Ophthalmology service is included.

**999 Research in Ophthalmology G Arr.**

(950) Su, A, W, Sp.

Research for thesis purposes only.

## Optometry

Office: 111 Optometry Building, 338 West Tenth Avenue.

Professors Hebbard (Dean) and Fry; Associate Professors Eskridge, Hill, and Wild; Assistant Professors Bailey, Fugate, Haines (Emeritus), Mote, and Reese; Instructors Albright, Carifa, Kerr, Warshaw, and Zinnecker.

**401 Survey of Optometry P 1**

A. 1 cl.

Prereq.: Optom. 1st yr. standing.

Development of optometry and optometric education; scope of optometric services; sources of vision information; kinds of current vision research.



- 431 Mechanical Optics I** P 4  
(531) *W. 3 cl., 1 2-hr. lab.*  
*Prereq.: Optom. 2nd yr. standing, Physics 112 and Math. 150.*

Classification of ophthalmic lenses; physical characteristics, manufacture, and testing of optical glass and lenses; system of distribution and stocking; grinding and polishing; measuring refracting power. *Wild.*

- 432 Mechanical Optics II** P 4  
(532) *Sp. 3 cl., 1 2-hr. lab.*  
*Prereq.: 431.*

Classification, description, manufacture, and distribution of frames and mountings; laboratory practice in grinding, polishing, and mounting lenses, and repairing and reconstructing frames and mountings. *Wild.*

- 433 Mechanical Optics III** P 4  
(533) *A. 3 cl., 1 2-hr. lab.*  
*Prereq.: 432.*

History and basic theory of ophthalmic lenses; facial measurements; writing specifications for lenses and frames to be assembled. *Wild.*

- 441 Practical Optometry I** P 4  
(514) *A. 3 cl., 1 3-hr. lab.*  
*Prereq.: Optom. 2nd yr. standing, Physics 112, and Math. 150.*

Theory and techniques of keratometry, skiametry, objective and subjective tests of refraction, accommodation, and functions of the extra-ocular muscles. *Hebbard.*

- 442 Practical Optometry II** P 4  
(515) *W. 3 cl., 1 3-hr. lab.*  
*Prereq.: 441.*

Correlation and analysis of data; systematic determination of the etiology of anomalies and sources of visual discomfort and inefficiency; corrective procedures and prescription writing. *Hebbard.*

- 443 Practical Optometry III** P 4  
(516) *Sp. 3 cl., 1 3-hr. lab.*  
*Prereq.: 442.*

Ophthalmoscopy and examination of the external parts and the media of the eye; case histories; techniques of investigating special types of anomalies; corrective procedures. *Hebbard.*

- 641 Clinical Practice in Optometry I** P 5  
(541) *Su, A, W, Sp. 2 cl., 3 3-hr. lab.*  
*Prereq.: 443.*

Clinical practice in examining eyes and carrying out corrective procedures; the conference periods are devoted to the discussion of problems encountered during the clinic periods. *Kerr.*

- 642 Clinical Practice in Optometry II** P 5  
(542) *Su, A, W, Sp. 2 cl., 3 3-hr. lab.*  
*Prereq.: 641.*  
Continuation of 641.

- 643 Clinical Practice in Optometry III** P 5  
(543) *Su, A, W, Sp. 2 cl., 3 3-hr. lab.*  
*Prereq.: 642.*  
Continuation of 642.

- 651 Subnormal Vision** P 4  
*Sp. 3 cl., 1 2-hr. lab.*  
*Prereq.: Optom. 3rd yr. standing and 443.*

Etiology of subnormal vision; measurement of loss of central acuity and other visual functions; design of optical devices for the aid of the partially sighted. *Eskridge.*

- 652 Aniseikonia** P 4  
*W. 3 cl., 1 2-hr. lab.*  
*Prereq.: Optom. 3rd yr. standing and 443.*

Clinical methods of testing and measuring aniseikonia; etiology of aniseikonia; effects associated with uncorrected aniseikonia; design of lenses for aniseikonia. *Fugate and Albright.*

- 653 Contact Lenses** P 4  
*A. 3 cl., 1 2-hr. lab.*  
*Prereq.: Optom. 3rd yr. standing and 443.*

Theory and practice in the use of contact lenses; artificial eyes; ptosis crutches and other prosthetic devices. *Bailey.*

- 660 Ophthalmic Pathology** P 5  
*A. 3 cl., 6 lab. hrs.*  
*Prereq.: Optom. 2nd yr. standing, Path. 650.*

Gross and microscopic pathology of the eye, including diseases of the conjunctiva, orbital cavity and pertinent pathology of the central nervous system. *Hill.*

- 701 Applied Pathology of the Eye I** P 4  
(555) *Sp. 3 cl., 1 2-hr. lab.*  
*Prereq.: 443 and Anat. 608.*

Advanced ophthalmoscopy, slit lamp microscopy, tonometry, and other methods of detecting pathological conditions; systematic study of ocular diseases; artificial eyes and other prosthetic devices.

- 702 Applied Pathology of the Eye II** P 4  
(556) *A. 3 cl., 1 2-hr. lab.*  
*Prereq.: 701.*

Motor disturbances of eyes, paralytic strabismus, peripheral fixation anomalies, nystagmus, ptosis, ptosis crutches, anomalous accommodative and pupillary responses. *Eskridge.*

- 703 Applied Pathology of the Eye III** P 4  
(557) *W. 3 cl., 1 2-hr. lab.*  
*Prereq.: 702.*

Visual fields; scotometry; subnormal central vision involving pathology; telescopic lenses and aids for subnormal vision; theory and practice in the use of contact lenses. *Schoessler.*

- 721 Optometric Economics and Jurisprudence** P 3  
(561) *W. 3 cl.*  
*Prereq.: 643.*

Historical background; legal status; practice building techniques; office accounting and general practice management; representative organization in optometry; professional ethics. *Fugate.*

- 722 Civic and National Problems in Eye Care** P 3  
(563) *Sp. 3 cl.*  
*Prereq.: 721.*

Number, distribution, supply interrelationships, and roles of the various ophthalmic groups; prevalence of visual anomalies; governmental and public-health aspects of vision care. *Warsaw.*

- 741 Advanced Clinical Practice in Optometry I** P 5  
(601) A, W, Sp. 2 cl., 3 3-hr. lab.  
Prereq.: 643.

Advanced clinical practice. The conference periods are devoted to the discussion of problems and cases encountered during the clinic periods. *Eskridge.*

- 742 Advanced Clinical Practice in Optometry II** P 5  
(602) A, W, Sp. 2 cl., 3 3-hr. lab.  
Prereq.: Optom. 4th yr. standing and 741.  
Continuation of 741.

- 743 Advanced Clinical Practice in Optometry III** P 5  
(603) A, W, Sp. 2 cl., 3 3-hr. lab.  
Prereq.: Optom. 4th yr. standing and 742.  
Continuation of 742.

- 745 Special Clinical Practice** P 3-5  
(545) Su, A, W, Sp. 1 cl., 2-4 3-hr. lab.  
Prereq.: 443, concur. 641 and permission of instructor.  
Repeatable to a maximum of 15 cr. hrs.

Clinical experience in specialized phases of optometric practice, (a) subnormal vision, (b) aniseikonia, (c) vision in schools and industry, (d) orthoptics, (e) contact lenses.

## Otolaryngology

Office: N-820 University Hospital, 410 West Tenth Avenue

Professor Saunders (Chairman); Associate Professor Birck; Assistant Professors Arthur, Lim, Melnick, Nilo, and Smith; Instructors Lowery, Miglets, Vermeulen, and Wagenbrenner.

### The Comprehensive Evaluation of the Patient

(See Med. 601, 602, 603.)

[Offered in cooperation with the Departments of Med., Ob. Gyn., Ophthal., Ped., Phy. Med., Prev. Med., Psychiatry, Radiol., and Surg.]

[Introductory consideration with other disciplines of the diagnosis and treatment of symptom complexes involving the ear, nose and throat; lectures, demonstrations and films are used.]

- 751 Special Group Studies in Otolaryngology** P 1  
1 month, offered Oct. and Feb.  
Prereq.: Med. 4th yr. standing.

Clinical work in basic otolaryngology as encountered in general practice and other medical specialty practice.

- 793 Individual Studies in Otolaryngology** P 6, 12, 18 G 2-5  
1, 2, or 3 months; offered all months.  
Prereq.: Med. 3rd or 4th yr. standing and permission of instructor.

Repeatable to a maximum of 18 cr. hrs.

Research problems in otolaryngology involving work in animal laboratory, temporal bone laboratory, audiology section and library; scheduled seminars and grand rounds, but no routine patient care.

- 794 Advanced Studies in Otolaryngology** P 6  
1 month; offered all months except June.  
Prereq.: Med. 3rd or 4th yr. standing.

Clinical application of the principles of otolaryngology with patients in clinic and operating room; at least one hour daily supervised teaching by staff member; instruction by slides, films, seminars and personal supervision. *Saunders and Staff.*

- 799 Residency in Otolaryngology** P 18  
Su, A, W, Sp.  
12 months full time, beginning July 1.  
Prereq.: Appointment as Resident, University Hospital.  
Repeatable to a maximum of 216 cr. hrs.

Rotation through clinical inpatient and outpatient services, consultative activities, supervisory and teaching responsibilities in otolaryngology; conferences and rounds.

- 820 Otolaryngology-Surgical Aspects of the Anatomy of the Head and Neck** G 6  
A, W. 3 cl., 2 qtrs.  
Prereq.: Permission of instructor.

Dissection of the head and neck with lectures and demonstrations of anatomical aspects especially of surgical interest to the otolaryngologist. *Saunders and Birck.*

- 850 Seminar in Otolaryngology**  
A, W, Sp. 2 qtrs.  
Prereq.: Permission of instructor.

- 850.01 Otopathology** G 2  
W, Sp. 2 cl.

Miglets and Lim.

- 850.02 General Otolaryngological Pathology** G 2  
2 cl.  
Prereq.: Arr. with instructor.

Saunders.

- 850.03 Bioacoustics** G 4  
W, Sp. Biennial 2 cl.

Melnick.

- 850.04 Audiological Considerations in Otolaryngology** G 4  
W, Sp. Biennial 2 cl.

Nilo.

- 850.05† Current Research in Otolaryngology Seminar** G 1  
Lowery.

- 999 Research in Otolaryngology** G Arr.  
Su, A, W, Sp.

Research for thesis purposes only.



# Pathology

Office: M-112 Starling Loving Hall, 320 West Tenth Avenue

**Professors** Geer (Chairman), Davidson, Frajola, Koestner, Liss, Macpherson, Newton, and von Haam; **Associate Professors** Gruemer, Kolas, Old, and Stevenson; **Assistant Professors** Allen, Baba, Benham, Ceelen, Davis, Diederichs, Greider, Hurd, Johansmann, Lewis, Lowy, McMillan, Miller, Murad, Murthy, Reiner, Samuels, Sarmina, Smith, Thorne, and van der Hoeven.

## 501 Medical Technology U 3

(630) Su. 3 cl.

*Prereq.: Med. Tech. 4th yr. standing.*

Hematology, urine analysis, clinical microscopy; blood bank, blood groups, blood types, and blood transfusions. *Stevenson.*

## 502 Medical Technology U 3

(631) A. 3 cl.

*Prereq.: Med. Tech. 4th yr. standing.*

Clinical microbiology, serology, parasitology, and mycology. *Macpherson and Staff.*

## 503 Medical Technology U 3

(633) W. 3 cl.

*Prereq.: Med. Tech. 4th yr. standing.*

Preparation of tissue for histologic examination by frozen and permanent sections; special stain techniques; immunohematology. *Macpherson.*

## 504 Medical Technology U 3

(632) Sp. 3 cl.

*Prereq.: Med. Tech. 4th yr. standing.*

Clinical blood and tissue chemistry, and modes of investigating diseases by biochemical methods. *Gruemer and Staff.*

## 505 Fundamentals of Disease U 3

(645) A. 3 cl.

*Prereq.: Med. Tech. 4th yr. standing.*

The nature of disease, mechanisms involved in the disease process, and use of the laboratory in defining the mechanisms of disease. *Macpherson and Staff.*

## 506 Medical Technology U 2

(636) W. 2 cl.

*Prereq.: Med. Tech. 4th yr. standing.*

The use and interpretation of laboratory tests in medicine. *Macpherson, Thorne, and Staff.*

## 507 Medical Technology U 2

(637) Sp. 2 cl.

*Prereq.: Med. Tech. 4th yr. standing.*

The use and interpretation of laboratory tests in medicine. *Thorne.*

## 603 Clinical Pathology P G 6

W. 4 cl., 2 2-hr. lab.

*Prereq.: For professional credit, Med. 2nd yr. standing; for graduate credit, permission of instructor.*

A study of the changes in the blood, urine, feces, sputum, spinal fluid and gastric contents brought about by disease. *Macpherson and Stevenson.*

## 624 General Pathology P G 7

A. 5 cl., 3 2-hr. lab.

*Prereq.: For professional credit, Med. 2nd yr. standing; for graduate credit, permission of instructor.*

Degenerative, circulatory, inflammatory, and neoplastic lesions; reactions to injury; pathology of infectious diseases. *Geer and Staff.*

## 625 Special Pathology P G 4

W. 2 cl., 2 2-hr. lab.

*Prereq.: 624.*

The pathology of the heart and blood vessels; the respiratory tract; the bone marrow, spleen and lymph nodes; the gastrointestinal tract; the liver, biliary tract, and pancreas. *Geer and Staff.*

## 626 Special Pathology P G 4

Sp. 2 cl., 2 2-hr. lab.

*Prereq.: 624.*

Pathology of the urinary tract; the male and female genital organs; the endocrine glands, the central nervous system; the bones, muscles, and skin. *Geer and Staff.*

## 650 Pathology P 5

A. 3 cl., 6 lab. hrs.

*Prereq.: Optom. 2nd yr. standing, Chem. 231, 232; Physiol. 516, 517, Anat. 607, 608.*

General pathology including the etiology of infectious disease, disturbances of nutrition, inflammation, and neoplasia, with special reference to the influence upon ophthalmic pathology; selected chapters of Special Pathology; histologic and gross demonstrations.

## 655 General Pathology P 5

Sp. 3 cl., 2 3-hr. lab.

*Prereq.: Dent. 2nd yr. standing.*

General pathology, including the etiology of diseases, disturbances of nutrition, inflammation, regeneration, and tumors.

## 792 Special Lectures in Pathology P G 3

Su, A, W, Sp. 3 cl.

*Prereq.: Graduate standing; Med. 3rd or 4th yr. standing.*

*Repeatable to a maximum of 24 cr. hrs.*

Lectures in special fields of pathology; one subdivision will be offered each quarter.

### 792.01 Blood and Bone Marrow

Pathology of the blood and bone marrow with emphasis on the laboratory diagnosis of anemia. *Stevenson.*

### 792.02 Biochemistry of Metabolic Disease

The biochemistry of diseases of errors of metabolism with special emphasis on abnormalities in protein metabolism. *Gruemer.*

### 792.03 Surgical Pathology

Special problems in surgical pathology including frozen section techniques and the use of the cryostat. *Old.*

### 792.04 Neuropathology

Selected lectures on neuropathology. *Liss.*

### 792.05 Immunoematology

Diagnostic laboratory methods in immunoematology. *Macpherson.*

### 792.06 Exfoliative Cytology

Diagnostic exfoliative cytology including aspiration biopsy. *von Haam.*

### 792.07 Neoplasms of Children

The pathology of neoplasms of children. *Newton.*

### 792.08 Cellular Pathology

Cellular pathology with emphasis on ultramicroscopic changes in cell injury. *Greider.*

**793 Individual Studies in Pathology**

1, 2, 3, or 4 months.

Su, A, W, Sp.

Prereq.: Med. 3rd or 4th yr. standing; graduate standing, permission of instructor.

**793.01 Pathologic Anatomy** P G 6, 12, or 18  
3 months, offered all months.

Must repeat to 18 cr. hrs.

Geer and von Haam.

**793.02 Principles of Clinical Cytology** P G 6 or 12

2 months, offered Dec., Feb., Apr.

Must repeat to 12 cr. hrs.

Ceelen.

**793.03 Serum Enzymes for Diagnosis of Disease** P G 6, 12, or 18

3 months, offered Mar.

Must repeat to 18 cr. hrs.

Gruemer.

**793.04 Clinical Chemistry** P 6, 12, 18  
1-3 months, offered all months.

Repeatable to a maximum of 18 cr. hrs.

Gruemer.

**793.05 Neuropathology** P G 6, 12, or 18  
3 months, offered Oct., Jan.

Must repeat to 18 cr. hrs.

Liss.

**793.06 Immunohematology** P G 6  
1 month, offered Sept., Mar., Apr., May.

Macpherson.

**793.07 Clinical Microbiology** P G 6, 12, or 18  
4 months, offered Nov.

Must repeat to 24 cr. hrs.

Macpherson.

**793.08 Pediatric Pathology** P G 6 or 12  
2 months, offered Sept., Nov., Jan., Apr.

Must repeat to 12 cr. hrs.

Newton.

**793.09 Surgical Pathology I** P G 6, 12, or 18  
4 months, offered July, Nov.

Must repeat to 24 cr. hrs.

Old.

**793.10 Surgical Pathology II** P G 6 or 12  
2 months, offered July, Sept., Jan., Apr.

Must repeat to 12 cr. hrs.

Old.

**793.11 Special Pulmonary Pathology** P G 6 or 12

2 months, offered July.

Must repeat to 12 cr. hrs.

**793.12 Ultrastructure of Cells in Disease** P G 6 or 12

2 months, offered Nov.

Must repeat to 12 cr. hrs.

**793.13 Laboratory Medicine the Erythrocyte** P G 6 or 12

2 months, offered Sept.

Must repeat to 12 cr. hrs.

Stevenson.

**793.14 Problems in Experimental Pathology** P G 6, 12, or 18  
4 months, offered Nov.

Must repeat to 24 cr. hrs.

von Haam.

**793.15 Problems in Pathology and Clinical Pathology** G 3-5**798 Internship in Pathology** P 18

Su, A, W, Sp.

12 months full time, beginning July 1.

Prereq.: Appointment as Intern, University Hospital.

Repeatable to a maximum of 72 cr. hrs.

Rotation through the Divisions of Pathologic Anatomy and Surgical Pathology; primary responsibility for pathology service, work rounds, and staff conferences.

**799 Residency in Pathology** P 18

Su, A, W, Sp.

12 months full time, beginning July 1.

Prereq.: Appointment as Resident, University Hospital.

Repeatable to a maximum of 288 cr. hrs.

Rotation through all Pathology and Clinical Pathology subspecialties; certain teaching responsibilities, conferences and seminars.

**850 Seminar in Pathology and Clinical Pathology** G 2

(800) Su, A, W, Sp. 1 2-hr. cl.

Prereq.: Graduate standing in Path.

Discussion of pertinent literature, presentation and discussion of research work, and demonstration of fresh specimens and slides.

**999 Research in Pathology** G Arr.

(950) Su, A, W, Sp.

Research for thesis or dissertation purposes only.

## Pediatrics

Offices: Children's Hospital, 561 South 17th Street; N-118, University Hospital, 410 West Tenth Avenue

Professors Graham (Chairman), Ambuel, Baxter (Emeritus), Coddington, Cramblett, Hosier, Newton, Seymour, Shaffer, and Sotos; Associate Professors Ainsworth, Anderson, Edelman (Emeritus), Falkenstein, Gibson, Gove, Hamparian, Hosterman, Howard, Kasmersky, Kontras, McClave, Meites, Missildine, Owen, Rie, Riepenhoff, Robertson, Somerson, Sylvester, and Turner; Assistant Professors Addanki, Aplin, Baldock, Bass, Batterson, Conant, Donaldson, Eaton, Eberly, I. Ertel, P. Ertel, Fernald, Frye, Goorey, Hales, Haynes, Levitin, Marks, McCall, Miller, Nelsen, Reiner, Robbins, Rueger, Ruma, Samuels, Sauers, Scheip, and Sivon.

### The Comprehensive Evaluation of the Patient

(See Med. 601, 602, 603.)

[Offered in cooperation with the Departments of Med., Ob. Gyn., Ophthalm., Otol., Phys. Med., Prev. Med., Psychiatry, Radiol., and Surg.]

[Multidiscipline approach to pediatric patients exhibiting normal growth and development, and deviation from normal; physical diagnosis of infants and children.]

**715 Clinical Pediatrics** P 6 or 12

2 months, offered July, Sept., Nov., Jan., Mar., or May.

Prereq.: Med. 3rd yr. standing.

Must repeat to 12 cr. hrs.

Didactic and clinical instruction in Pediatrics; presentation of all of the medical, surgical and psychiatric aspects of diseases of children.



**793 Individual Studies in Pediatrics**

Su, A, W, Sp.

1, 2, 3, or 4 months; offered all months except June.

Prereq.: Permission of instructor.

- 793.01 **Advanced Pediatrics** P 6, 12, or 18  
2, 3, or 4 months. G 1-5  
Must repeat to 12, 18, or 24 cr. hrs. for professional credit.

Graham.

- 793.02 **Genetics** P 6, 12, 18  
1, 2, or 3 months. G 1-5  
Repeatable to a maximum of 18 cr. hrs. for professional credit.

Kontras.

- 793.03 **Infectious Diseases** P 6, 12, or 18  
2, 3, or 4 months. G 1-5  
Must repeat to 12, 18, or 24 cr. hrs. for professional credit.

Cramblett.

- 793.04 **Pediatric Cardiology** P 6, 12, 18  
1, 2, or 3 months. G 1-5  
Repeatable to a maximum of 18 cr. hrs. for professional credit.

Hosier.

- 793.05 **Developmental Diagnosis and Infant Neurology** P 6, 12, or 18  
2, 3, or 4 months. G 1-5  
Must repeat to 12, 18, or 24 cr. hrs. for professional credit.

Wehe.

- 793.06 **Blood Diseases of Infants and Children** P 6  
1 month. G 1-5

Newton.

- 793.07 **Neonatal Research** P 6, 12, or 18  
2, 3, or 4 months.  
Must repeat to 12, 18, or 24 cr. hrs.

Robertson.

- 793.08 **Adolescent Medicine** P 6, 12, 18  
1, 2, or 3 months. G 1-5  
Repeatable to a maximum of 18 cr. hrs. for professional credit.

Shaffer.

- 793.09 **Pediatric Endocrinology** P 6, 12, or 18  
2, 3, or 4 months. G 1-5  
Must repeat to 12, 18, or 24 cr. hrs. for professional credit.

Sotos.

- 793.10 **Pulmonary Diseases** P 6, 12, or 18  
2, 3, or 4 months. G 1-5  
Must repeat to 12, 18, or 24 cr. hrs. for professional credit.

Young.

- 793.11 **Handicapped Child** P 6, 12, 18  
1, 2, or 3 months. G 1-5  
Repeatable to a maximum of 18 cr. hrs. for professional credit.

Ambuel.

- 793.12 **Pediatric Practice** P 6  
1 month.

Turner.

- 793.13 **Renal and Electrolyte Disorders** P 6, 12, or 18  
2, 3, or 4 months. G 1-5  
Must repeat to 12, 18, or 24 cr. hrs. for professional credit.

Nelsen.

- 793.14 **Nutrition Studies** P 6, 12, or 18  
2, 3, or 4 months.  
Must repeat to 12, 18, or 24 cr. hrs.

Owen.

- 793.15 **Newborn Care** P 6, 12, 18  
1, 2, 3, or 4 months.  
Repeatable to a maximum of 24 cr. hrs.

Robertson.

**794 Group Studies in Pediatrics**

Su, A, W, Sp.

1, 2, 3, or 4 months.

- 794.01 **Advanced Pediatric Problems** P 6, 12, 18  
1, 2, or 3 months; offered all months except June.  
Prereq.: 715.  
Repeatable to a maximum of 18 cr. hrs.

Graham.

- 794.02 **Ambulatory Pediatrics** P 6, 12, 18  
1, 2, 3, or 4 months; offered all months except June.  
Prereq.: 3rd or 4th yr. standing.  
Repeatable to a maximum of 24 cr. hrs.

Ambuel.

- 794.03 **Inpatient Pediatrics** P 6, 12, 18  
1, 2, 3, or 4 months; offered all months except June.  
Prereq.: 3rd or 4th yr. standing.  
Repeatable to a maximum of 24 cr. hrs.

Graham and Staff.

- 794.04 **Pediatric Cardiology** P 6  
1 month, offered all months.  
Prereq.: 3rd or 4th yr. standing.

Hosier.

- 794.05 **Pediatric Endocrinology and Metabolism** P 6, 12, 18  
1, 2, 3, or 4 months; offered all months except Aug.  
Prereq.: 3rd or 4th yr. standing.  
Repeatable to a maximum of 24 cr. hrs.

Sotos.

- 794.06 **Pediatric Hematology** P 6  
Prereq.: 3rd or 4th yr. standing.  
1 month, offered all months.

Newton.

- 794.07 **Adolescent Medicine** P 6, 12, 18  
1, 2, 3, or 4 months; offered all months.  
Prereq.: 715.  
Repeatable to a maximum of 24 cr. hrs.

Shaffer.

- 794.08 **Rheumatology and Handicapped Child** P 6, 12, 18  
1, 2, 3, or 4 months; offered all months.  
Prereq.: 3rd or 4th yr. standing.  
Repeatable to a maximum of 24 cr. hrs.

Ambuel.

- 794.09 **Pulmonary Diseases of Infants and Children** P 6  
1 month, offered all months.  
Prereq.: 3rd or 4th yr. standing.

Young.

- 794.10 **Child Development** P 6, 12, or 18  
2, 3, or 4 months; offered all months.  
Prereq.: Approval of instructor.  
Must repeat to 12, 18, or 24 cr. hrs.

Wehe.

- 794.11 Diseases of the Newborn P 6  
1 month, offered all months.  
Prereq.: Approval of instructor.  
Robertson.

- 798 Internship in Pediatrics P 18  
Su, A, W, Sp.  
12 months full time, beginning July 1.  
Prereq.: Appointment as Intern in Department of Ped.  
Repeatable to a maximum of 72 cr. hrs.

Eight months at Children's Hospital, four in medical pediatrics, two in pediatric surgery, two in pathology; four months at University Hospital, two emphasizing communicable diseases, two emphasizing the newborn infant.

- 799 Residency in Pediatrics P 18  
Su, A, W, Sp.  
12 months full time, beginning July 1.  
Prereq.: Appointment as Resident, Children's and University Hospitals.  
Repeatable to a maximum of 216 cr. hrs.

Supervised care of hospitalized and ambulatory pediatric patients at Children's Hospital and University Hospital; certain teaching responsibilities; conferences and rounds.

- 830 Pediatrics for Dental Graduates G 3  
(716) 2 months, offered Nov. and Mar.  
Prereq.: Graduate standing.

General clinical pediatrics presented by lectures, clinical conferences, case presentations, seminar, as a part of the training program for developing pedodontists.

- 850 Seminar in Pediatrics G 3-5  
(900) Su, A, W, Sp.  
Prereq.: Permission of department chairman.

- 999 Research in Pediatrics G Arr.  
(950) Su, A, W, Sp.  
Research for thesis purposes only.

## Petroleum Engineering

Office: 335 Chemical Engineering Building, 140 West 19th Avenue

Associate Professor Slider.

- 442 Petroleum Geophysical and Drilling Methods U 3  
(713) W. 1 cl., 2 3-hr. lab.  
Prereq.: Physics 233 or 113 and Math. (537) or 153 or equiv.

The engineering aspects of the geophysical exploration and drilling for gas and oil; emphasis is placed on rotary drilling. Slider.

- 542 Drilling Fluids U G 3  
(713) W. 1 cl., 2 3-hr. lab.  
Prereq.: 442.

The significance and control of drilling fluid qualities; commercial drilling fluids analyzed in the laboratory and the control of their properties demonstrated. Slider.

- 543 Physical Analysis of Petroleum U G 2 Reservoirs  
(723) W. 1 cl., 1 4-hr. lab.

Prereq.: 442 or permission of instructor.

A quantitative study of the physical nature of a petroleum reservoir; includes laboratory analysis of porosity, permeability, saturation, capillary pressure, and multi-phase characteristics of reservoir rocks. Slider.

- 544 Oil and Gas Well Completions U G 3  
(737) Sp. 3 cl.  
Prereq.: 542, 642.

Design of well completion methods emphasizing reservoir damage and evaluation of reservoir conditions, casing design, cementing, logging, acidizing, and hydraulic fracturing. Slider.

- 641 Reservoir Engineering—Hydrocarbon Phase Behavior U G 3  
(735) A. 2 cl., 1 2-hr. lab.  
Prereq.: Chem. E. 609.

Quantitative study of the physical nature and phase behavior of subsurface reservoir fluids. Slider.

- 642 Reservoir Engineering—Fluid Flow U G 3  
(736) A. 2 cl., 1 2-hr. lab.  
Prereq.: 641.

Quantitative study of reservoir fluid flow, including analysis of material balance, producing mechanisms, and well performance. Slider.

- 743 Petroleum Investigations U G 3-10  
(750) A, W, Sp. Library, conf., and lab. work.  
Prereq.: 642.

743.01 Engineering problems of petroleum and natural gas exploration, production and transportation.

Slider.

743.02 Design or planning of petroleum field development.

- 796 Advanced Petroleum Engineering Technology U G 2  
(765) Sp. 2 cl.  
Prereq.: 642 and 543.

Library research and seminar discussions of the most recent technical developments in petroleum engineering. Slider.

- 842 Petroleum Production and Oil Field Development and Operational Problems G 3-10  
(802) A, W, Sp.  
Prereq.: Permission of instructor.

Examination and testing of petroleum and petroleum bearing rocks; economic interpretation and application to problems of primary and secondary recovery.

- 999 Research in Petroleum Engineering G Arr.  
(950) Su, A, W, Sp.  
Research for thesis or dissertation purposes only.



# Pharmacology

Office: 214 Hamilton Hall, 1645 Neil Avenue

Professors Marks (Chairman), Gardier and Truitt; Associate Professors Goldman and Hollander; Assistant Professors Besch, Courl, Dagirmanjian, Dutta, Engelman, and Leveque.

## 600 General Pharmacology U G 3

A. 2 cl., 1 3-hr. lab.

Prereq.: *Physiol. Chem. 611, Physiol. 601* or permission of instructor.

Introduction to the general principles of pharmacology, drug classification, and the sites and mechanisms of drug action. *Leveque*.

## 601 Laboratory Methods in Pharmacology U G 3

W. 1 cl., 2 3-hr. lab.

Prereq.: 600.

Biological, chemical, electronic and mathematical techniques commonly employed in a pharmacology laboratory.

## 610 Toxicology and Drug Identification U G 3

W. 1 cl., 2 3-hr. lab.

Prereq.: 600.

The biochemical basis for the action of poisons and methods for the identification of drugs and their metabolites.

## 700 Medical and Mammalian Pharmacology P G 4

W. 4 cl.

Prereq.: 600 or permission of instructor.

General principles of pharmacology; drugs used for diagnosis, prevention or eradication of the cause of disease, including endocrine products and chemotherapeutic agents.

## 701 Medical and Mammalian Pharmacology P G 5

Sp. 4 cl., 3 lab. hrs.

Prereq.: 700.

Continuation of 700.

## 770 Clinical Pharmacology and Therapeutics P 3

May.

Prereq.: *Med. 4th yr. standing, concur. Med. 770*.

Application of clinical pharmacologic principles to the treatment of disease states. *Engelman*.

## 793 Individual Studies in Pharmacology P 6, 12, 18 G 3-15

1, 2, 3, months; offered all months except June.

Su, A, W, Sp.

Prereq.: Permission of instructor.

Cardiac arrhythmias; digitalis pharmacodynamics; neuropharmacology; endocrine pharmacology; advanced cardiovascular pharmacology; autonomic pharmacology. *Marks*.

## 820†\* Autonomic Pharmacology G 3-15

A. 2 cl., lab. arr.

Prereq.: 701 or permission of instructor.

Not open to students with credit for 720.

Comprehensive review of drugs that mimic or affect the actions of autonomic neurones with emphasis on biochemical and cellular analysis of autonomic drug action. *Marks and Dagirmanjian*.

## 821†\* Cardiovascular Pharmacology G 3-15

W. 2 cl., lab. arr.

Prereq.: 701 or permission of instructor.

Not open to students with credit for 721.

Modern concepts of the action of drugs on the heart and circulation. *Leveque and Dutta*.

## 822 Neuroendocrine Pharmacology G 3-15

Sp. 2 cl., lab. arr.

Prereq.: 600 or 701.

Not open to students with credit for 722.

Levels of interaction of the nervous and endocrine systems. *Goldman*.

## 823 Pharmacology Related to Anesthesia G 3-15

Su. 2 cl., lab. arr.

Prereq.: 701 or permission of instructor.

Not open to students with credit for 723.

The pharmacodynamics of anesthetic agents and of other drugs which modify the state of surgical anesthesia. *Gardier*.

## 845\* Bioelectric Potentials G 5-15

W. 5 cl., lab. arr.

Prereq.: *Physiol. 601, 602* or equiv. or permission of instructor.

Not open to students with credit for 745.

Methods of recording transmembrane potentials from cells; interpretation of cell potentials; effects of drugs on transmembrane potentials. *Hollander*.

## 850 Seminar in Pharmacology G 2

(750) Su, A, W, Sp.

Prereq.: Permission of instructor.

Conferences on selected topics in pharmacology.

## 851†\* Steroid Pharmacology G 3-15

Sp. 2 cl., lab. arr.

Prereq.: 701 or permission of instructor.

Not open to students with credit for 751.

Pharmacology of steroids which affect special tissues, organs, or systems. *Besch*.

## 852†\* Drug Metabolism G 3

A. 2 cl. arr.

Prereq.: 600 or 701 or permission of instructor.

Not open to students with credit for 752.

Discussions of mechanisms of biotransformation of drugs by enzymes, pharmacologic characteristics of these systems, and techniques for the study of drug metabolism. *Couri*.

## 999 Research in Pharmacology G Arr.

(950) Su, A, W, Sp.

Research for thesis or dissertation purposes only.

# Pharmacy

Office: 217 College of Pharmacy, 500 West 12th Avenue

Professors Parks (Dean), Beal, Bope, Guth, Lapidus, Malspeis, Nelson, Tye, and Whitehouse; Associate Professors Burkman, Doskotch, Knapp, Latiolais, Mitscher, Ober, Salisbury, Sokoloski, Witiak, and Wolf; Assistant Professors Notari, Olson, and Patil; Instructors Buerki, Godwin, and Shoup; Clinical Instructors Anderson, Holland, and Sherrin.

The areas of instruction and the courses in the College of Pharmacy comprising these areas are listed below: Pharmacy and Pharmaceutics—400, 401, 402, 490, 491, 503, 504, 505, 507, 508, 509, 511, 512, 515, 600, 601, 606, 609, 610, 611, 613, 614, 615, 690, 693, 695, 700, 715, 717, 805, 806, 809, 811, 812, 816, 817, 850, 993, 999.

Medicinal and Pharmaceutical Chemistry—432, 435, 534, 535, 632, 635, 636, 693, 737, 835, 836, 845, 846, 850, 993, 999.

Pharmacognosy and Natural Products Chemistry—450, 451, 553, 693, 754, 789, 850, 851, 852, 853, 855, 993, 999. Pharmacology—470, 475, 570, 577, 579, 670, 671, 672, 673, 675, 676, 677, 679, 680, 693, 850, 870, 871, 872, 880, 881, 993, 999.

Pharmacy Administration—520, 524, 525, 625, 693, 695, 725, 826, 850, 993, 999.

## 400 Introduction to Pharmacy P 3

A. 4 cl.

A survey of the profession of pharmacy dealing with pharmacy's place in the health care system, its history, educational requirements, organization, regulation, and current development. *Knapp and Salisbury.*

## 401 Pharmaceutics I P 5

W. 4 cl., 1 2-hr. lab.

Prereq.: Chem. 231 or equiv.

The application of physical chemical principles to pharmaceutics: a fundamental introduction to solid and liquid dosage forms. *Malspeis, Notari, and Sokoloski.*

## 402 Pharmaceutics II P 5

Sp. 3 cl., 1 3-hr. lab.

Prereq.: 401.

The application of physical chemical principles to pharmaceutics; properties of solutions of pharmaceutical and medicinal compounds. *Malspeis, Notari, and Sokoloski.*

## 432 Pharmaceutical Analysis P 5

W. 3 cl., 2 3-hr. lab.

Prereq.: Chem. 221.

Methods for the qualitative and quantitative determination of drugs. *Olson.*

## 435 Bio-Pharmacy P 5

(614) Su, Sp. 4 cl., 1 3-hr. lab.

Prereq.: Chem. 232 or equiv.

A study of pharmaceutical agents important in biochemical processes. *Bope.*

## 450 Pharmacognosy P 4

(521) Sp. 4 cl.

Prereq.: Chem. 253 or equiv.

A study of the history, source, identification, constituents, and medicinal preparations of some of the more important drugs of biological origin. *Beal, Doskotch, and Mitscher.*

## 451 Pharmacognosy P 5

(522) A. 4 cl., 1 3-hr. lab.

Prereq.: Chem. 253 or equiv.

A continuation of 450. *Beal, Doskotch, and Mitscher.*

## 470 Pharmacology for Nurses P 4

Sp. 4 cl.

Prereq.: Chem. 102 or 122, Physiol. 312.

Open only to students registered in School of Nursing.

A survey of the important drugs used in medicine and a consideration of their therapeutic applications; some time is also devoted to reading prescriptions. *Nelson, Tye, Wolf, and Burkman.*

## 475 Introduction to Disease P 5

Sp. 5 cl.

Prereq.: Anat. 200, Physiol. 312.

A study of the nature and mechanisms of disease relative to the understanding of the action of drugs. *Tye.*

## 490 Pharmacy Survey P 1

(550) A. 1 cl.

Lectures and discussions to acquaint the student with the profession of pharmacy and the many fields of interest and specialization within the profession. *Parks.*

## 491 Pharmacy Survey P 1

(551) Sp. 1 cl.

A continuation of 490. *Parks.*

## 503 Pharmaceutics III P 5

A. 3 cl., 1 3-hr. lab.

Prereq.: 402.

The application of physical chemical principles to pharmaceutics: solubility and mixed solvents, complexation, redox systems in pharmacy. *Sokoloski, Malspeis, and Notari.*

## 504 Pharmaceutics IV P 5

W. 3 cl., 2 2-hr. lab.

Prereq.: 503.

The application of physical chemical principles to pharmaceutics: heterogeneous systems, emulsions, suspensions, gels and magmas. *Sokoloski, Malspeis, and Notari.*

## 505 Pharmaceutics V P 5

Sp. 3 cl., 2 2-hr. lab.

Prereq.: 504.

The formulation of compounded prescriptions and other dosage forms, with emphasis on drug availability, physiological requirements, incompatibility, prediction of stability and clinical effectiveness. *Notari, Malspeis, and Sokoloski.*

## 507 Manufacturing Pharmacy P 3

(621) A. 1 cl., 2 3-hr. lab.

Prereq.: 402.

A course dealing with the formulation and mechanical fabrication of a wide variety of pharmaceutical dosage forms. *Guth.*

## 508 Manufacturing Pharmacy P 3

(622) W. 1 cl., 2 3-hr. lab.

Prereq.: 402.

A continuation of 507. *Guth.*



**509 Manufacturing Pharmacy P 3**  
(623) *Sp. 1 cl., 2 3-hr. lab.*  
*Prereq.: 402.*

A continuation of 507. *Guth.*

**511 History of Pharmacy I P 2**  
(514) *A. 2 cl.*  
*Prereq.: 400.*

A course designed to give the pharmacy student a deeper appreciation of the background of pharmacy and its development through the years. *Buerki.*

**512 History of Pharmacy II P 2**  
*W. 2 cl.*  
*Prereq.: 400.*

A continuation of 511. Emphasis upon the development of the profession of pharmacy in Great Britain and the United States. *Buerki.*

**515 Hospital Pharmacy P 3**  
(643) *A, W, Sp. 1 cl., 2 3-hr. lab.*  
*Prereq.: 402.*

*Repeatable to a maximum of 9 cr. hrs.*

Introduction to and clinical experience in hospital pharmacy under the supervision of a registered pharmacist in University Hospital or Grant Hospital. *Latiolais and Holland.*

**520 Pharmaceutical Marketing P 4**  
(509) *A. 3 75-min. cl.*  
*Prereq.: Econ. 201.*

A study of the pharmaceutical industry and the distribution of drug products and pharmaceutical services. *Knapp.*

**524 Pharmacy Management P 4**  
(512) *W. 3 cl., 1 2-hr. lab.*  
*Prereq.: 520, Acc. 201.*

A study of fundamental problems associated with planning, organizing, and controlling a community pharmacy emphasizing case problems to illustrate the practical application of management principles. *Knapp.*

**525 Pharmacy Management P 3**  
(513) *Sp. 2 cl., 1 2-hr. lab.*  
*Prereq.: 524.*

A continuation of 524. *Knapp.*

**534 Organic Pharmaceutical Chemistry P 4**  
(604) *Su. (1st term). A. 4 cl.*  
*Prereq.: Chem. 232 or equiv.*

A study of the chemistry of organic pharmaceutical and medicinal agents. *LaPidus and Witiak.*

**535 Organic Pharmaceutical Chemistry P 4**  
(605) *Su. (2nd term). W. 4 cl.*  
*Prereq.: 534 or equiv.*

A continuation of 534. *Witiak and LaPidus.*

**553 Microscopical Pharmacognosy P 3**  
(717) *W. 3 2-hr. lab.*  
*Prereq.: 451 or equiv.*

A course embodying the principles of the microscope and the application of microchemical and specialized techniques in the detection, separation, and identification of drugs. *Beal.*

**570 Pharmacology P 5**  
(607) *A. 5 cl.*

*Prereq.: Physiol. 312 or equiv. or permission of instructor.*

Fundamental materia medica including a discussion of the more commonly used drugs and preparations, their pharmacology and therapeutic applications. *Nelson, Burkman, Tye, and Wolf.*

**577 Biological Products P 3**  
(602) *W. 3 cl.*  
*Prereq.: Microbiol. 509.*

U.S.P. standards and legal requirements governing manufacture, standardization, storage and distribution of toxins, antitoxins, serums, and vaccines. *Tye, Nelson, and Wolf.*

**579 The Pharmacist and Public Health P 3**  
(600) *Sp. 3 cl.*  
*Prereq.: Physiol. 312 or equiv., Microbiol. 509.*

An introduction to public health stressing the pharmacist's role in the maintenance of the health of the community. *Tye and Wolf.*

**600 Prescription Accessories and Surgical Appliances P 3**  
*A, W. 3 cl.*

*Prereq.: Senior standing.*

A presentation of background, variety, proper use and general information with regard to surgical supplies, appliances and prescription accessories. *Guth and Bope.*

**601 Cosmetology P 3**  
*A, W, Sp. 1 cl., 2 2-hr. lab.*

*Prereq.: Senior standing or permission of instructor.*

A study of the physical, chemical and physiological aspects of materials and products comprising the area of cosmetics with particular emphasis on allergenic properties and formulation. *Guth.*

**606 Pharmaceutics VI P 5**  
*A. 3 cl., 2 2-hr. lab.*  
*Prereq.: 505.*

A continuation of 505 with emphasis on the physical chemical properties of drugs and dosage forms and the nature and intensity of biological action. *Notari, Malapeis, and Sokoloski.*

**609 The Pharmacy of Metabolic Agents P 3**  
(647) *Sp. 3 cl.*

*Prereq.: Senior standing.*

A study of the pharmacy of medicinal products used in the treatment of deficiency diseases, malnutrition, and convalescence. *Guth.*

**610 Professional Practice I P 3**  
*W. 3 2-hr. cl.*  
*Prereq.: 606, 679.*

A clinical practice course designed to place the student in situations of the sort arising in professional community, hospital and nursing home practice.

**611 Professional Practice II P 3**  
*Sp. 3 2-hr. cl.*  
*Prereq.: 606, 679.*

A continuation of 610.

- 613 New and Non-Official Drugs** P 3  
*Sp. 3 cl.*  
*Prereq.: Senior standing.*  
 The pharmacy of the more commonly used new and non-official medicinals. *Guth.*
- 614 Professional Ethics** P 2  
*Sp. 1 2-hr. cl.*  
*Prereq.: 512 or permission of instructor.*  
 The conceptual basis and content of pharmaceutical ethics; significance of codified ethics, interprofessionally considered; differences of view underlying ethical issues; methods of encouraging compliance. *Buerki, Knapp, and Salisbury.*
- 615 Sterile Prod** P G 3  
 (715) *W. 2 cl., 1 3-hr. lab.*  
*Prereq.: 504 or equiv.*  
 A course dealing with the formulation, preparation, and testing of sterile products including injections, bulk solutions, and nasal and ophthalmic preparations. *Latio-lais and Shoup.*
- 625 Pharmaceutical Jurisprudence** P 3  
 (650) *Sp. 3 cl.*  
*Prereq. or concur.: 525.*  
 A study of the laws and regulations relating to the practice of pharmacy with emphasis on cases and court decisions illustrating the pharmacist's responsibilities. *Salisbury and Knapp.*
- 632 Organic Pharmaceutical Chemistry** P 3  
*Sp. 3 cl.*  
*Prereq.: 535 or equiv.*  
 A continuation of 535. *LaPidus and Witiak.*
- 635 Drug Assay** P 4  
 (610) *A. 2 cl., 2 3-hr. lab.*  
*Prereq.: 535 or equiv.*  
 The qualitative and quantitative examination of drugs and drug formulations. *Olson.*
- 636 Drug Assay** P 3  
 (711) *W. 2 cl., 1 3-hr. lab.*  
*Prereq.: 635 or equiv.*  
 A continuation of 635. *Olson.*
- 670 Chemical Pharmacology I** P G 6  
*A. 5 cl., 1 3-hr. lab.*  
*Prereq.: 475, Anat. 200, Biochem. 514, Chem. 253, Physiol. 312, or permission of instructor.*  
 An interdisciplinary approach to the fundamental chemical and pharmacological principles of drugs relative to their biochemorphology, absorption, metabolic fate, pharmacodynamics and therapeutic applications. *LaPidus, Witiak, Burkman, Tye, and Wolf.*
- 671 Pharmacology** P G 5  
 (708) *W. 4 cl., 1 3-hr. lab.*  
*Prereq.: 570 or equiv.*  
 Fundamental Materia Medica including a discussion of the more commonly used drugs and preparations along with their pharmacological and therapeutic applications. *Nelson, Tye, Wolf, Burkman, Patil, and Ober.*
- 672 Pharmacology** P G 5  
 (709) *Sp. 4 cl., 1 3-hr. lab.*  
*Prereq.: 671 or equiv.*  
 A continuation of 671. *Nelson, Tye, Wolf, Burkman, Patil, and Ober.*
- 673 Chemical Pharmacology II** P G 6  
*W. 5 cl., 1 3-hr. lab.*  
*Prereq.: 670.*  
 A continuation of 670. *LaPidus, Witiak, Burkman, Ober, and Tye.*
- 675 Glandular Products** P 3  
 (601) *Su, A. 3 cl.*  
*Prereq.: 673 or permission of instructor.*  
 Preparations, properties, standardization, and uses of medicinal products obtained from glands and other organs of animals, and their related compounds. *Tye, Nelson, and Wolf.*
- 676 Chemical Pharmacology III** P G 6  
*Sp. 5 cl., 1 3-hr. lab.*  
*Prereq.: 673.*  
 A continuation of 673. *LaPidus, Witiak, Nelson, Patil, and Tye.*
- 677 Toxicology** P 3  
 (619) *A. 3 cl.*  
*Prereq.: 676 or permission of instructor.*  
 Fundamentals of toxicology, including a discussion of the general classes of poisons, their physiological action, methods of treatment and detection with special emphasis on doses. *Nelson and Burkman.*
- 679 Chemical Pharmacology IV** P G 6  
*A. 5 cl., 1 3-hr. lab.*  
*Prereq.: 676.*  
 A continuation of 676. *LaPidus, Witiak, Nelson, Patil, and Tye.*
- 680 Pharmacology of Newer Products** P 3  
 (714) *W. 3 cl.*  
*Prereq.: 679.*  
 A course covering the pharmacology of the more recent drugs and preparations and their therapeutic application. *Nelson.*
- 690 Professional Orientation** P 1  
 (615) *Sp. 1 cl.*  
*Prereq.: Senior standing.*  
 Discussions to focus on contemporary problems in pharmacy and to stimulate development of professional awareness and responsibilities. *Parks and Knapp.*
- 693 Individual Studies in the Pharmaceutical Sciences** P 1-3  
*Su, A, W, Sp. Cl., lab. arr.*  
*Prereq.: Junior standing, cumulative point hour ratio of 2.5, and permission of instructor.*  
*Repeatable to a maximum of 9 cr. hrs.*  
 Laboratory and library work designed to give the qualified student an opportunity to complete an original investigation or pursue an interest in a special problem.



**695 Seminar P 2**

(645) A, W, Sp. 2 cl.

Prereq.: Senior standing or permission of instructor.

Repeatable to a maximum of 6 cr. hrs.

A course dealing with the problems arising out of professional relations of the pharmacist with the physician, medical internes, nurses, laboratory technicians, and the laity.

**700 Radioisotope Tracer Techniques P G 5  
and Radiopharmaceuticals**

A. 3 cl., 2 3-hr. lab.

Prereq.: Permission of instructor.

A survey of the properties of radioisotopes and radiation; radioisotope tracer methods and applications to pharmaceutical sciences; the preparation, standardization, and handling of radiopharmaceuticals. *Malspeis and Ober.*

**715 Hospital Pharmacy and the P G 3  
Hospital Organization**

(725) A. 3 cl.

Prereq.: Senior standing, 515 or equiv., and permission of instructor.

A course dealing with the hospital organization and the relationship of the departmental components to the pharmacy. *Latiolais.*

**717 Drug Therapy in Clinical P G 3  
Practice**

W, Sp. 1 cl., 6 lab. hrs.

Prereq.: 679 and permission of instructor.

Repeatable to a maximum of 6 cr. hrs.

A clinical clerkship involving didactic, seminar, and clinical instruction in patient drug therapy using facilities of hospitals and clinics. *Latiolais.*

**725\* Advanced Pharmaceutical P G 3  
Marketing**

W. 3 cl.

Prereq.: 520, Bus. Org. 650 or equiv.

Theoretical aspects of drug marketing with emphasis on policies and practices of the pharmaceutical manufacturer. *Knapp.*

**737 Advanced Pharmaceutical P G 5  
Analysis**

(712) Sp. 3 cl., 2 3-hr. lab.

Prereq.: 432 or permission of instructor.

The use of specialized instruments in the assay and control methods of drugs and drug preparations. *Olson.*

**Drug Metabolism**

(See Pharmacol. 752.)

[Offered in cooperation with Department of Pharmacol.]

(Discussions of mechanisms of biotransformation of drugs by enzymes, pharmacologic characteristics of these systems, and techniques for the study of drug metabolism.)

**754 Microscopical Pharmacognosy P G 3**

(718) W. 1 cl., 2 2-hr. lab.

Prereq.: 553 or equiv.

Pharmaceutical applications of specialized microscopic instruments. *Beal.*

**789 Isolation Techniques in P G 5  
Research**

(730) W. 3 cl., 2 3-hr. lab.

Prereq.: Chem. 253 and permission of instructor.

A study and application of selected isolation techniques for the purification of natural products or other organic mixtures. *Doskotch.*

**805 Technology G 3**

W. 1 cl., 2 3-hr. lab.

Prereq.: 606 or equiv.

Principles and practice in processing pharmaceutical dosage forms by the use of machines; emphasis is on fundamentals of unit processes in pharmaceutical manufacture. *Guth.*

**806\* Advanced Technology G 2-3**

Sp. 6-9 hrs. lab.

Prereq.: 606 or equiv.

Repeatable to a maximum of 9 cr. hrs.

A laboratory course designed to permit study of a variety of problems in pharmaceutical production, with the ultimate aim of pilot plant scale production. *Guth.*

**809 Product Development G 3**

Su. 1 cl., 2 3-hr. lab.

Prereq.: 606 or equiv.

Study of problems involved in formulation of suitable dosage forms and the relationship of physical, chemical, therapeutic, and organoleptic properties of medicaments to principles of formulation. *Guth.*

**811 Advanced Pharmacy G 3**

Sp. 3 cl.

Prereq.: Chem. 521 or 533, and permission of instructor.

A study of the application of physical chemical principles to the design and development of fluid pharmaceutical dosage forms. *Sokoloski, Malspeis, and Notari.*

**812 Advanced Pharmacy G 3**

Su. 3 cl.

Prereq.: Chem. 521 or 533, and permission of instructor.

A study of the methods used to predict, determine, and improve the stability characteristics of medicinal agents in dosage form. *Sokoloski, Malspeis, and Notari.*

**816 Principles of Hospital Pharmacy G 3**

(807) W. 3 cl.

Prereq.: 715.

A course dealing with the administrative and professional principles and concepts of, and trends affecting, hospital pharmacy. *Latiolais.*

**817 Principles of Hospital Pharmacy G 3**

(808) Sp. 3 cl.

Prereq.: 816.

A continuation of 816. *Latiolais.*

**826 Advanced Pharmacy G 3  
Administration**

Su, A. 3 cl.

Prereq.: 725, Bus. Org. 500 or equiv.

Repeatable to a maximum of 6 cr. hrs.

Investigation and analysis of selected areas of pharmacy administration for group discussion and written report; case problems, review of current literature, and research. *Knapp.*

- 835 Advanced Medicinal Chemistry G 3**  
*A. 3 cl.*  
*Prereq.: 679 or equiv., Chem. 833, or permission of instructor.*

Chemistry of autonomic receptor sites; recent literature references on the biological, chemical, and stereochemical requirements for adrenergic and cholinergic stimulation and blockade. *LaPidus and Witiak.*

- 836 Advanced Medicinal Chemistry G 3**  
*W. 3 cl.*  
*Prereq.: 679 or equiv., Chem. 833, or permission of instructor.*

Selected topics in medicinal chemistry, the subject matter being drawn from the current literature. *LaPidus and Witiak.*

- 845 Advanced Medicinal Chemistry G 3**  
*W. 3 cl.*  
*Prereq.: 679 or equiv., Chem. 833, or permission of instructor.*

Concepts of conformational analysis; recent selected literature references on the subject; the application of this science to the design and synthesis of biologically active molecules. *LaPidus and Witiak.*

- 846 Advanced Medicinal Chemistry G 3**  
*Sp. 3 cl.*  
*Prereq.: Chem. 833.*  
*Repeatable to a maximum of 6 cr. hrs.*

Synthesis of selected natural products; course content to change every two years; topic examples: steroids, alkaloids, heterocyclic compounds, tropolones and aromatic systems, vitamins, etc. *LaPidus and Witiak.*

- 850 Seminar G 1**  
*A, W, Sp. 1 cl.*  
*Repeatable to a maximum of 30 cr. hrs.*

Round-table discussion, oral and written reports dealing with recent advances in the pharmaceutical sciences.

- 851 Advanced Pharmacognosy G 3**  
*Sp. 3 cl.*  
*Prereq.: Biochem. 612 or Bot. 431 or permission of instructor.*

A study of research involving biosynthesis of plant constituents of pharmaceutical interest. *Beal, Doskotch, and Mitscher.*

- 852 Medicinal Plant Propagation and Cultivation G 3**  
*Su. 3 cl.*  
*Prereq.: Bot. 431 or permission of instructor.*

A study of the methods employed and problems involved in the propagation, cultivation, harvesting, and evaluation of medicinal plants. *Beal.*

- 853 Medicinal Plant Laboratory G 2-3**  
*Su, Sp. 6-9 hrs., lab.*  
*Prereq.: 852 or permission of instructor.*  
*Repeatable to a maximum of 12 cr. hrs.*

A laboratory course dealing with fundamental principles and special problems involved in the plantings and development of a medicinal plant garden. *Beal.*

- 855 Plant Drug Constituents G 3**  
*(833) W. 2 cl., 1 3-hr. lab.*  
*Prereq.: Permission of instructor.*

A study of the more important classes of constituents obtained from plants, including methods of isolation, purification, and identification. *Beal, Doskotch, and Mitscher.*

- 870 Theories in Pharmacology G 3**  
*A. 3 cl.*  
*Prereq.: 679 or equiv.*

Orientation to graduate pharmacology; an introduction into theories of pharmacology and the research approach in pharmacology. *Nelson, Tye, Wolf, Burkman, Patil, Ober, and Whitehouse.*

- 871 Screening Methods in Pharmacology G 3**  
*W. 1 cl., 2 3-hr. lab.*  
*Prereq.: 870 or equiv., Biol. 650 or equiv. and permission of instructor.*

Qualitative pharmacology covering the standard laboratory procedures and methods used in routine screening and laboratory evaluation of new drugs. *Wolf.*

- 872 Advanced Methods in Pharmacology G 3**  
*Sp. 1 cl., 2 3-hr. lab.*  
*Prereq.: 871 and permission of instructor.*

The theory and practice of specialized pharmacological instruments. *Patil, Tye, and Ober.*

- 880\* Biological Standardization G 3**  
*Su. 1 cl., 2 3-hr. lab.*  
*Prereq.: 871 and permission of instructor.*

Quantitative pharmacology covering principles of bioassay design and interpretation; laboratory consists of the performance of standard bioassays. *Nelson and Tye.*

- 881\* Advanced Topics in Pharmacology G 3**  
*W. 3 cl.*  
*Prereq.: 871 and permission of instructor.*

A study of current advanced theories of pharmacodynamics. *Whitehouse, Tye, and Ober.*

- 993 Individual Studies in the Pharmaceutical Sciences G 1-5**  
*(890) Su, A, W, Sp. Cl., lab. arr.*  
*Repeatable to a maximum of 15 cr. hrs.*

Individual investigation of problems in one of the areas below:

- Pharmacy and Pharmaceutics.
- Pharmacy Administration.
- Hospital Pharmacy.
- Medicinal and Pharmaceutical Chemistry.
- Pharmacognosy and Natural Products Chemistry.
- Pharmacology.

- 999 Research in the Pharmaceutical Sciences G 1-15**  
*(950) Su, A, W, Sp.*

Research for thesis or dissertation purposes only.



# Philosophy

Office: 10 University Hall, 216 North Oval Drive

Professors Nelson (Chairman), Evans (Emeritus), Fox, Hinshaw, Hochberg, Turnbull, and Weitz; Associate Professors Garner, Oldenquist, Olscamp, and Reither (Emeritus); Assistant Professors Anderson, Brown, Chase, Hausman, Kielkopf, Robison, Rosen, and Stelzer.

## 100 Types of Philosophy U 3

(400) A, W, Sp.

Not open to students with credit for 101.

Essentials of the various types of philosophy, such as idealism, materialism, dualism, and scepticism.

## 101 Introduction to Philosophy U 5

(401) Su, A, W, Sp.

Not open to students with credit for 100.

Examination of major problems, such as the nature of reality, knowledge, truth, morality, and of the relation of philosophy to science and religion.

## 130 Introduction to Ethics U 5

(405) Su, A, W, Sp.

The nature of right and wrong, good and evil; the grounds of moral choice and decision; the resolution of moral conflicts.

## 150 Introduction to Logic U 5

(402) Su, A, W, Sp.

Deduction and induction: principles of clear statement and valid reasoning; fallacies; and the methods by which theories and laws are established.

## 170† Introduction to Philosophy of Religion U 3

(406) A.

A philosophical analysis of the nature of religion and the foundations of religious belief.

## 210 Philosophical Bases of Western Culture U 5

(520) Su, A, W, Sp.

Prereq.: Sophomore standing.

Not open to students with credit for (551) or (552).

Elucidation of major philosophical themes and their humanistic and scientific roles in western thought through the writings of Plato, Lucretius, Augustine, Descartes, Kant, and Nietzsche. Weitz, Turnbull, and Fox.

## 230 Social Ethics U 5

(510) Sp.

Issues of ethical theory and their bearing on the problems of the nature of a good social order and of right social action.

## 240 Esthetics U 5

(515) Su, W, Sp.

Principal systems of esthetics; interpretation of the creative activity of the artist, the work of art, and the contemplation and criticism of art objects. Brown and Garner.

## 511 History of Ancient and Medieval Philosophy U G 5

(601) A.

Not for graduate credit to students majoring in Philos.

Turnbull and Chase.

## 512 History of Philosophy from Bacon to Hume U G 5

(602) Su, W.

Not for graduate credit to students majoring in Philos.

## 513 History of Philosophy from Kant Through the Nineteenth Century U G 5

(603) Sp.

Not for graduate credit to students majoring in Philos.

### GENERAL PREREQUISITES FOR COURSES NUMBERED 600 AND 700

Not open to freshmen or sophomores. Unless otherwise indicated the prerequisites for 600 and 700 courses are 10 hours in philosophy.

## 611 Contemporary Philosophy U G 5

(604) A, W.

Not open to students with credit for (605).

Examination of the doctrines of such philosophers as Bergson, Santayana, Whitehead, Russell, and Dewey. Hochberg and Severens.

## 613†\* American Philosophy U G 3

(607) Sp.

The development of American philosophy; puritanism, deism, transcendentalism, and pragmatism.

## 615 Philosophy of James and Dewey U G 3

(642) Su, Sp.

Rosen.

## 617 Existentialism U G 3

A.

Not open to students with credit for (605).

Introduction to the major doctrines of existentialism through writings of representative existentialists, such as Kierkegaard, Sartre, Jaspers, and Heidegger. Brown.

## 631 Advanced Ethical Theory U G 5

(671) Sp.

Prereq.: 130.

An intensive examination of representative ethical systems such as egoism, hedonism, intuitionism, and utilitarianism. Olscamp.

## 641 Advanced Esthetic Theory U G 3

W.

Prereq.: 240.

An intensive examination of representative esthetic systems such as Imitationism, Expressionism, Formalism, and Emotionalism.

- 650 Symbolic Logic I** U G 3  
(649) A.  
*Prereq.: 150 or permission of instructor.*  
Development of the classical propositional calculus from both the matrix and the axiomatic points of view. Modal, multivalued, weak, intuitionistic, propositional calculi. *Kielkopf.*
- 651 Symbolic Logic II** U G 3  
(650) W.  
*Prereq.: 650 or permission of instructor.*  
Axiomatic development of the predicate calculus of first-order through proofs of consistency and completeness. Equality, restricted quantification, and descriptions. *Kielkopf.*
- 653 Inductive Logic and Probability** U G 3  
Su, Sp.  
*Prereq.: 150 or permission of instructor.*  
Analysis of types of empirical inference; natural law and confirmation theory; calculus and nature of probability; philosophic presuppositions of inductive inference. *Stelzer.*
- 671\* Philosophy of History** U G 3  
(665) A.  
An essay of representative speculative theories of history; analysis of critical problems arising in the pursuit of historical knowledge. *Hinshaw.*
- 672 Philosophy in Literature** U G 5  
(618) A.  
Philosophical problems as reflected in classics of literature, such as the Greek dramatists, Shakespeare, Voltaire, T. S. Eliot, Proust and Tolstoy. *Brown.*
- 673\* Philosophy of Language** U G 3  
(666) Su, A.  
*Prereq.: 150, or permission of instructor.*  
Semantics and language analysis; functions of language; modes of meaning, relation of linguistic structure to metaphysics.
- 674 Philosophy of Mathematics** U G 3  
W.  
*Prereq.: 651.*  
Analysis of the concepts of mathematical truth, knowledge, and objects. Especial consideration of the theorems of Gödel, Tarski, and Church.
- 675 Philosophy of Religion** U G 5  
(653) W.  
A study of religious concepts and problems; the idea and nature of God, of man, their relation to the world and human destiny. *Fox.*
- 676 Philosophy of Science** U G 3  
(652) W.  
A study of the nature and structure of scientific concepts, laws, and theories; appraisal of methodologies, presuppositions, and frames of reference in science. *Hinshaw and Stelzer.*
- 677† Conceptions and Methods of the Social Sciences** U G 3  
(654) Sp.  
Philosophic assumptions of social science; nature of explanation (methodological individualism, holism, functionalism); methods in natural and behavioral science; fact and value in social inquiry.
- 693 Individual Studies in Philosophy** U G 2-10  
(701) Su, A, W, Sp.  
*Prereq.: Permission of department chairman.*  
Students ordinarily earn from 2 to 5 cr. hrs., but honor students may earn up to 10 cr. hrs.
- 712†\* Philosophy of Plato** U G 5  
(638) A.  
*Prereq.: 10 cr. hrs. of Philos. including 511.*
- 713†\* Philosophy of Aristotle** U G 5  
(639) Sp.  
*Prereq.: 10 cr. hrs. of Philos. including 511.*
- 714†\* Medieval Philosophy** U G 5  
(609) Sp.  
*Prereq.: 10 cr. hrs. of Philos. including 511, or 712 and 713.*  
An examination of the main trends in the thought of the middle ages, based on a study of characteristic works of some of the most important medieval philosophers.
- 715† Selected Topics in Medieval Philosophy** U G 3  
Sp.  
*Prereq.: 10 cr. hrs. in Philos. including 511.*  
Not open to students with credit for 714.  
Repeatable to a maximum of 21 cr. hrs.
- 717 Philosophy of Descartes** U G 3  
(635) Su, Sp.  
*Prereq.: 10 cr. hrs. of Philos. including 512.*
- 718† Philosophy of Locke and Berkeley** U G 3  
(633) W.  
*Prereq.: 10 cr. hrs. of Philos. including 512.*
- 719†\* Philosophy of Spinoza** U G 3  
(636) Sp.  
*Prereq.: 10 cr. hrs. of Philos. including 512.*
- 720 Philosophy of Leibniz** U G 3  
(637) A.  
*Prereq.: 10 cr. hrs. of Philos. including 512.*
- 721† Philosophy of Hume** U G 3  
(634) A.  
*Prereq.: 10 cr. hrs. of Philos. including 512.*  
*Olcamp.*
- 722\* Kant: Critique of Pure Reason** U G 5  
(646) W.  
*Prereq.: 10 cr. hrs. of Philos. including 513.*
- 723†\* Kant: Critique of Practical Reason and Critique of Judgment** U G 5  
(647) Sp.  
*Prereq.: 722.*



**724† Post-Kantian German Idealism U G 3**(840) *Sp.**Prereq.: 10 cr. hrs. of Philos. including 513.*

German philosophy as presented in writings of such thinkers as Fichte, Schelling, Hegel, and Schopenhauer.

**728 History of Logic U G 5***W.**Prereq.: 651 or permission of instructor.*

A history of logic from ancient Greek times to the present.

**760 Theory of Knowledge I U G 3**(861) *W.**Prereq.: 650 or 651, or permission of instructor.*A study of major epistemological problems: the possibility, origin, foundation, structure, methods, limits, types, and validity of knowledge. *Hinshaw.***761 Theory of Knowledge II U G 3***Sp.**Prereq.: 760 or permission of instructor.*An intensive study of a systematic epistemological treatise, such as Blanshard's *Nature of Thought*, Lewis' *Mind and the World Order*, or Lovejoy's *Revolt Against Dualism*. *Hinshaw.***763 Problems in Metaphysics I U G 3**(863) *A.**Prereq.: 150 and permission of instructor.*Philosophic methods and nature of metaphysics; categories; substance and process; causality and law. *Nelson.***764 Problems in Metaphysics II U G 3**(864) *W.**Prereq.: 763 or permission of instructor.*Metaphysical presuppositions of knowledge; problems of universals; monism and pluralism; space and time. *Nelson.***767 Philosophy of Mind U G 3**(867) *A.*Classical and contemporary approaches to the nature of mind, mind-body, other minds, intentionality, and other problems. *Weitz.***770 Advanced Studies in Philosophy U G 3-5**(780) *Su, A, W, Sp.**Prereq.: Permission of instructor.**Repeatable to a maximum of 21 cr. hrs.**A. Theories of Truth.**W. Problems of Philosophical Psychology.**Sp. Philosophy of Wittgenstein. Weitz. Syntactic structures.***771 Selected Topics in Analytic Philosophy U G 3***A, W, Sp.**Prereq.: 150 and 611.**Repeatable to a maximum of 21 cr. hrs.***GENERAL PREREQUISITES FOR COURSES  
NUMBERED 800 AND 800**

Unless otherwise indicated the prerequisites for 800 and 900 courses are acceptable foundation courses either in general philosophy, logic and ethics, or history of philosophy, and in some cases in all these subjects.

**811 Seminar in the History of Philosophy G 3**(825) *Sp.**Repeatable to a maximum of 9 cr. hrs.***831 Seminar in Ethics and Theory of Value G 3**(824) *A.**Repeatable to a maximum of 9 cr. hrs.***841 Seminar in Aesthetics G 3**(827) *Sp.**Repeatable to a maximum of 9 cr. hrs.***850 Seminar in Logic G 3**(821) *W.**Repeatable to a maximum of 9 cr. hrs.***853† Seminar in Induction and Probability Theory G 3**(830) *Sp.**Repeatable to a maximum of 9 cr. hrs.***861† Seminar in Theory of Knowledge G 3**(823) *W.**Repeatable to a maximum of 9 cr. hrs.***864 Seminar in Metaphysics G 3**(822) *Sp.**Repeatable to a maximum of 9 cr. hrs.**Nelson.***870† Seminar in Philosophy of Mathematics G 3**(828) *Sp.**Repeatable to a maximum of 9 cr. hrs.***871 Seminar in Philosophy of Logic G 3***A.**Prereq.: 651 or permission of instructor.*

Differing views on the nature of logical inference and logical truth.

**875† Seminar in the Philosophy of Religion G 3**(807) *W.**Repeatable to a maximum of 9 cr. hrs.**Fox.***877† Seminar in Philosophy of Science G 3**(829) *W.**Repeatable to a maximum of 9 cr. hrs.***885 Seminar in Philosophical Analysis G 3**(826) *Su, A, W, Sp.**Repeatable to a maximum of 21 cr. hrs.***999 Research in Philosophy G Arr.**(950) *Su, A, W, Sp.*

Research for thesis or dissertation purposes only.

## Photography

Office: 12 Brown Hall, 190 West 17th Avenue

**Professors** Wagner (Chairman) and Davis; **Associate Professors** Binau and Drake; **Assistant Professors** Ball, Nielsen, Platt, and Staples; and **Instructors**.

### 201 Photography U 3

(511) *Su, A, W, Sp. 2 cl., 2 2-hr. labs.*

Fundamentals of photography, including cameras, emulsion characteristics, processing, filters, chemistry, and optics. *Binau and Wilhelm.*

### 501 Advanced Photography U G 3

(650) *W. 2 cl., 2 2-hr. lab.*

*Prereq.: 201 or 594.*

Continuation of 201 or 594. *Binau and Wilhelm.*

### 502 The History and Theory of Photography U G 3

*A, Sp. 3 1-hr. cl. and lab.*

*Prereq.: Graduate or 4th yr. standing.*

A study of the history of photography and its contribution to the arts, science, and education with critical and aesthetic considerations of the photographic image. *Wagner.*

### 503 The History and Criticism of Motion Pictures U G 3

*W. 2 2-hr. cl. and lab.*

*Prereq.: Graduate or 4th yr. standing.*

The study of the motion picture and critique at the contextual, artistic, technical, historical, and informational levels. *Staples.*

### 505 Theory of Photography and the Moving Image U G 3

(605) *A, Sp. 2 2-hr. cl.*

*Prereq.: Graduate or 4th yr. standing and permission of instructor.*

A study of the development of the art and science of photography and its relation to related arts and sciences; the photographic origins of the still and motion picture. *Staples.*

### 506 Photography in Education and Communication U G 3

(603) *A, Sp. 2 2-hr. cl.*

*Prereq.: Graduate or 4th yr. standing and permission of instructor.*

Photographic media in education and communication; role of the photographic image in relation to educational theory; development of photographic systems in educational and informational programs. *Wagner.*

### 507 Application of Photographic Processes to Television U G 3

(610) *Su, A, W, Sp. 2 cl., 2 lab. hrs.*

Motion picture production for use in television; film production planning, continuity, and photographic processes; special problems in telecasting and relationship of film units to other station activities. *Elgabri and Nielsen.*

### 508 Motion Picture Photography U G 3

(615) *A, Sp. 2 cl., 2 lab. hrs.*

*Prereq.: 507 or permission of instructor.*

Motion picture production in the 16 mm. field; principles of motion picture cameras, photography, processing, scripting, editing, sound recording, and production planning. *Elgabri.*

### 594 Scientific Photography U G 3

(625) *A, W. 2 cl., 2 2-hr. lab.*

*Prereq.: Chem. 111, 112, 113 or equiv., 20 cr. hrs. in a science major.*

*Not open to students with credit for 201.*

For students in physical and biological science who need a knowledge of photography as an aid to their scientific work; applications of photography to science. *Binau, Davis, and Drake.*

### 693 Individual Studies in Photography U G 3-5

(699) *Su, A, W, Sp. 4-8 lab. hrs.*

*Prereq.: Graduate standing, 6 cr. hrs. in Photog., and permission of instructor.*

*Repeatable to a maximum of 15 cr. hrs.*

Use of departmental facilities for adding to the student's knowledge of a specially selected photographic problem pertaining to his major field.

### 794 Special Group Studies in Photography U G 3-5

*A, W, Sp.*

*Prereq.: 505, 506, 507, 508 and 3 hrs. of 693; or 501, 506; 594 and 6 hrs. of 693.*

*Repeatable to a maximum of 15 cr. hrs.*

Specialized problems, processes, and theories in still and motion pictures designed for graduate students working on a minor in photography or cinema.

## Physical Education

Office: Women's: 201 Pomerene Hall, 1760 Neil Avenue

**Professors** Mordy (Chairman), Alkire, Allenbaugh, Beyrer, Rupert, and Yost; **Associate Professors** Bailey, Blaine, Fogle, Logsdon, and Schroeder; **Assistant Professors** Allen, Clement, Hukill, Hull, Lilly, Nelson, Payton, Tandy, Wheeler, and Wynne; **Instructors** Brannan, Cooley, Goodhart, Herrold, House, Johnson, Patton, Richardson, and Weber.

Office: Men's: 125 Physical Education Building, 337 West 17th Avenue

**Professors** Hess (Chairman), Ashbrook, Bennett, Cushman, Hayes, Hixson, Larkins, Mand, and Mathews; **Associate Professors** Bartels, Biggs, Hendrix, Hewlett, Kaplan, Karow, Kleinman, Montonaro, Stahl; **Assistant Professors** Beekman, Bowers, Clark, Coates, Ersing, Fredericks, Gotta, Harper, Simonian, Sweeney, and Taylor; **Instructors** Bohnke, Breiner, Bruce, Burkholder, Colmery, Dunlap, Epskamp, Myers, Neale, O'Brien, Sarkkinen, Steele, Strobel, and Zubovich.

### 101 Physical Education (Men) U 1

(401) *Su, A, W, Sp. 2 cl.*

*Not open to Phys. Ed. majors; required of all other freshman men.*

Instructions in the technique of play, rules, strategies, and the social behavior involved in sports and dance activities.



- 102 Physical Education (Men) U 1**  
 (402) Su, A, W, Sp. 2 cl.  
 Continuation of 101.
- 103 Physical Education (Men) U 1**  
 (403) Su, A, W, Sp. 2 cl.  
 Continuation of 102.
- 104 Physical Education (Women) U 1**  
 (421) Su, A, W, Sp. 2 cl.  
 Not open to Phys. Ed. majors; required of all other freshman women.  
 Instructions in the techniques, rules, strategy, and social behaviors of a sport or dance activity selected by the student from a wide range of offerings.
- 105 Physical Education (Women) U 1**  
 (422) Su, A, W, Sp. 2 cl.  
 Continuation of 104.
- 106 Physical Education (Women) U 1**  
 (423) Su, A, W, Sp. 2 cl.  
 Continuation of 105.
- 107 Physical Education U 1**  
 (425) Su, A, W, Sp. 2 lab. hrs.  
 Not open to Phys. Ed. majors.  
 Cannot be repeated for credit.  
 a. Men  
 A continuation of 103.  
 b. Women  
 A continuation of 106.
- 108 Physical Education U 1**  
 (426) Su, A, W, Sp. 2 lab. hrs.  
 Continuation of 107.  
 a. Men  
 b. Women
- 109 Physical Education U 1**  
 (427) Su, A, W, Sp. 2 lab. hrs.  
 Continuation of 108.  
 a. Men  
 b. Women
- 131 Physical Education Activities U 2**  
 (411) A. 5 2-hr. labs.  
 Prereq.: Permission of chairman.  
 Required of Phys. Ed. majors, and open to women in place of 104, 105, or 108.  
 These courses aim to develop knowledge, understandings, and skills in the basic activities appropriate to the teacher of physical education.  
 a. Men  
 b. Women
- 132 Physical Education Activities U 2**  
 (412) W. 5 2-hr. labs.  
 See requirements for 131.  
 Continuation of 131.  
 a. Men  
 b. Women
- 133 Physical Education Activities U 2**  
 (413) Sp. 5 2-hr. labs.  
 See requirements for 131.  
 Continuation of 132.  
 a. Men  
 b. Women
- 214 The Science of Development through Activity U 5**  
 (514) A, W, Sp. 4 cl., 1 2-hr. lab.  
 Prereq.: Zool. 231, 232, 233.  
 A systematic study of factors in human movement which affect the physiological development of the organism.
- 221 Sports Officiating—Football U 2**  
 (520) A. 2 cl., 2 lab. hrs.  
 Prereq.: 233 or satisfactory evidence of playing experience in football.  
 (Students completing this course are eligible for certification to officiate football in the schools of Ohio.)  
 This course will include lectures, readings, class discussions, and field experience in the officiating of school and college football games.
- 222 Sports Officiating—Basketball U 2**  
 (521) 2 cl., 2 lab. hrs.  
 Prereq.: 132 or satisfactory evidence of playing experience in basketball.  
 Lectures, readings, class discussions, and field experience in the officiating of school and college basketball games.  
 a. Men  
 A, W.  
 b. Women  
 W.
- 230 Nature of Human Movement U 5**  
 A, Sp. 2 2-hr. cl., 1 2-hr. lab.  
 The study of human movement including its organization, significance and cultural implications.
- 231 Physical Education Activities U 2**  
 (414) A. 5 2-hr. labs.  
 Prereq.: Permission of chairman.  
 Required of Phys. Ed. majors.  
 Cannot be repeated for credit.  
 These courses aim to develop knowledge, understandings, and skills in the basic activities appropriate to the teacher of physical education.  
 a. Men  
 b. Women
- 232 Physical Education Activities U 2**  
 (415) W. 5 2-hr. labs.  
 See requirements for 231.  
 Continuation of 231.  
 a. Men  
 b. Women
- 233 Physical Education Activities U 2**  
 (416) Sp. 5 2-hr. labs.  
 See requirements for 231.  
 Continuation of 232.  
 a. Men  
 b. Women
- 236 Sport Notation U 3**  
 W, Sp. 2 cl., 1 2-hr. lab.  
 Theory and techniques of Labanotation for the purpose of recording the movement in specialized sport skills.
- 270 Supervision of Playground and Community Recreation Activities U 2**  
 (422) Sp. 2 2-hr. labs.  
 Programming of recreational activities relative to community conditions; overview of activities desirable for a broad, comprehensive program.

**271 Camp Counseling U 3**

(560) A. 2 cl., 7-day Sept. workshop

Sp. 2 2-hr. cl.

Prereq.: Phys. Ed. major and minor students shall have completed the Sept. workshop immediately preceding the qtr. of enrollment.

(Spring qtr. section is open to all University students.)

Investigation of the responsibilities and duties of the counselor in various types of camps; practical experience in basic craft skills.

**323 Creative Physical Education for Elementary Teachers U 3**

(578) Su, A, W, Sp. 2 2-hr. labs.

Not open to students with credit for 541.

Theory of physical activities as a medium for creative self-expression; exploration of rhythmical, individual and group activities and their relation to development of children.

**420 The Teaching of Athletic Sports**

2 cl., 2 lab. hrs.

Prereq.: Satisfactory evidence of playing skill in the elected athletic sport.

Repeatable to a maximum of 9 cr. hrs.

Study in the theory strategy and mechanics of coaching various interscholastic, intercollegiate athletic sports.

**420.01 Baseball U 3**

a. Men

W.

b.† Women

A, Sp.

Not open to students with credit for 547.

**420.02 Basketball U 3**

a. Men

A, Sp.

b.† Women

Sp.

Not open to students with credit for 519.

**420.03 Fencing U 2**

a. Men

A.

b. Women

A.

**420.04 Football U 3**

a. Men

W.

Not open to students with credit for 546.

**420.05 Gymnastics U 3**

a.† Men

Sp.

b. Women

A.

**420.06 Golf U 2**

a.† Men

Sp.

b.† Women

Sp.

**420.07 Lacrosse U 3**

a.† Men

A.

b.† Women

A.

**420.08 Soccer U 3**

a. Men

Sp.

b.† Women

Sp.

**420.09 Swimming U 3**

a. Men

Sp.

b. Women

W.

Not open to students with credit for 549.

**420.10 Tennis U 2**

a. Men

A.

b. Women

A.

**420.11 Track and Field U 3**

a. Men

W.

b. Women

Sp.

Not open to students with credit for 544.

**420.12 Wrestling U 2**

a.† Men

A.

**420.13 Ice Hockey U 3**

a.† Men

Sp.

**530 The Administration of Interschool Athletics U 2**

(616) A, Sp. 2 cl.

An introductory course in athletic administration, including scheduling contests, records, eligibility, contest management, facilities and equipment, budgets and finance, public relations, and awards. *Hixson.*

**541 Theory and Practice of Elementary School Physical Education U 3**

A, Sp. 2 2-hr. labs., 1 3-hr. school observation.

Contribution of rhythmical, individual and group activities to the development of children; stimulation of the creative process and adaption of methods and materials.

**542 Physical Education for the Elementary School Child U 4**

A, W.

Study of characteristics of the elementary school child with implications for physical education experiences; the selection, adaptation and teaching of appropriate activities are emphasized.

a. Men

4 cl., 1 3-hr. lab.

Prereq.: Psychol. 230.

b. Women

2 1-hr. cl., 1 2-hr. lab., 2 3-hr. lab.

Prereq.: 541, Psychol. 230.

**543 The Theory and Practice of Physical Education for Junior High School Youth U 3**

A, Sp. 5 lab. hrs.

A study of the developmental needs of nearly adolescent youth. Emphasis is placed upon the adaptation of physical activities to meet these needs.



**589 Directed Teaching Experience in U 2  
Physical Education**

(551) Su, A, W, Sp. 4 hr. conf.-lab.

Prereq.: Permission of departmental adviser.

Repeatable to a maximum of 6 cr. hrs.

Opportunity is provided for assisting in the teaching of sport and dance activity classes.

a. Men

b. Women

**621 Principles of Physical Education U G 5**

Su, A, W, Sp. 5 cl.

Prereq.: Major or minor in Phys. Ed. or permission of instructor.

Origins and nature of modern physical education as developmental experience and medium of education; contributions to organic growth, personal resources, and growth in social relationships.

**630 Problems in Intramural Sports U G 2**

(615) Su, Sp. 2 cl. hr.

A critical analysis of intramural sports programs; problems of policy and administration of programs on the elementary, secondary and college levels will be studied. *Beekman.*

**640 History of Health Education U G 3  
and Physical Education**

Su, W. 3 cl.

An historical survey of physical and health education beginning with ancient Greece and with special emphasis on recent and contemporary developments in Europe and America. *Bennett.*

**642 Organization and Administration U G 5  
of Physical Education**

(682) W. 5 cl.

Prereq.: 621 or equiv.

Study of policies and procedures in the organization and administration of the physical education program. *Hess and Mordy.*

**647 Physical Education for U G 3  
Secondary School Youth**

Prereq.: Satisfactory proficiency in 231-233 inclusive, or equiv.

Emphasis on the study of needs, interests and abilities of secondary school youth, and methods and materials for the conduct of appropriate sports activities. *Tandy, Hendrix, and Hixson.*

a. Men

A, Sp. 2 2-hr. cl.

b. Women

A, Sp. 3 2-hr. cl.

**648 Physical Education for Senior U G 3  
High School Youth**

Su, A, Sp. 3 2-hr. cl.

Prereq.: 231-233 inclusive, or equiv.

Continuation of 647 with emphasis on the characteristics of the middle adolescent as they affect the selection and conduct of physical education activities. *Tandy.*

**650 Evaluation in Physical U G 3  
Education**

(625) Su, W. 2 cl., 1 2-hr. lab.

A critical study of methods in evaluating biological, social and psychological outcomes for physical education. *Mathews.*

**660 Kinesiology U G 5**

(691) A, W, Sp. 3 cl., 2 2-hr. labs.

Prereq.: Zool. 231, 232, 233.

The science of bodily movement. *Bartels, Goodhartz, Harper, and Simonian.*

**661 First Aid and Care of Injuries U G 5**

(685) A, Sp. 3 cl., 2 2-hr. labs.

Prereq.: 660 or equiv.

Students completing this course are eligible for Red Cross standard or advanced certification in first aid.

A consideration of the methods of prevention and care of injuries, conditioning of athletes and safety provisions for the conduct of physical education. *Biggs.*

**662 Adapted Physical Education U G 5**

(630) Prereq.: 660 or equiv.

Organization and administration of individual physical education for typical and atypical students; laboratory experience in sports, swimming, or exercise therapy for prevalent types of disabilities. *Erving and Wheeler.*

a. Men

Su, A, Sp. 3 cl., 1 4-hr. lab.

b. Women

Su, Sp. 4 cl., 2 lab. hrs.

**690 Physical Education Workshop U G 4**

(799) Su. 3-week workshop.

Prereq.: Teaching experience or senior standing in Phys. Ed. and permission of instructor.

A team approach to activity teaching in physical education with emphasis on instruction, methods, materials, resources, evaluation, inter-relationships, and others.

a. Men

Hixson.

b. Women

Logsdon.

**693 Individual Studies in Physical U G 1-4  
Education**

(701) Su, A, W, Sp.

Prereq.: Graduate or senior standing and permission of adviser.

Investigation of selected professional problems.

**770 Outdoor Education and Camp U G 3  
Administration**

(649) Su, Sp. 3 cl.

Prereq.: 271 or permission of instructor.

Introduction to the principles, status and administration of outdoor education and camping. *Mand.*

**771 Public Recreation: Its Organi- U G 3  
zation and Administration**

(655) W. 3 cl.

Prereq.: Soc. 465 or equiv.

Consideration of common patterns of organization of community recreation found in American cities, large and small, under municipal school and other auspices. *Mand.*

**820 Principles of Football Coaching G 3  
and Management**

(601) Su. 3 cl.

Prereq.: Graduate standing and coaching experience.

A course for advanced students of football considering the principles of various types of strategy; the designing of plays, methods of teaching and controlling players and special problems of management. *Hayes.*

**830 Problems in Interscholastic and Intercollegiate Athletics G 3**

(816) W. 3 cl.

The relation of athletics to education; problems of athletic organization; eligibility; finance, current trends and developments in management and purpose; public relations. *Hixson*.

**831 Professional Preparation of Teachers in Physical and Health Education G 3**

(846) Sp. 3 cl.

Principles underlying professional preparation of teachers in physical and health education; curriculum construction; selection of candidates; supervised teaching; staff personnel; problems pertaining to professional students. *Hess*.

**841 Physical Education in School and College G 3**

(805) Su, A. 3 cl.

**842 Seminar in the Role of Sports in Society G 3**

(814) Su, Sp. 3 cl.

Prereq.: Soc. 465 or equiv.

Study of the significance of sports in society; and examination of the extent to which sports contribute to human welfare. *Mordy*.

**850 Survey of Research in Physical Education G 3**

(810) Su, W. 3 cl.

Prereq.: 885 or equiv.

*Mathews*.**860 Organic Science as Applied to Physical Education and Health Education G 5**

(823) Sp.

Prereq.: 10 cr. hrs. *Physiol.*, 10 cr. hrs. *Chem.*, and 10 cr. hrs. *Biol.* or equiv.

A systemic study of the integration of Chemistry, Biology, Anatomy, Physiology to the fields of Physical Education and Health Education. *Ashbrook*.

**880† Supervision of Physical and School Health Education G 3**

(826) A. 3 cl.

A study of the responsibilities and functions of the supervisor in city, county, and state school systems. *Hixson*.

**885 Methods of Research in Health Education and Physical Education G 3**

(825) Su, A. 3 cl.

To develop some competency in professional writing and in the use of various research methods applied to health education and physical education. *Mathews*.

**994 Problems in Physical Education G 3**

(880)

Advanced problems in physical education, individual or group participation.

**994.01 Recreation**

A.

**994.02 Adapted Physical Education**

Su, W.

**994.03 Curriculum in Physical Education**

Su, Sp.

**994.04 Physical Education in Higher Education**

A.

**994.05 Physical Education in Secondary Education**

Su, Sp.

**994.06 Physical Education in Elementary Education**

W.

**994.07 School Evaluation**

W.

**994.08 Administration**

A.

**995 Seminar in Physical Education G 2**

(802) Su, W. 2 cl.

**996 Seminar in Recreation G 2**

(803) Su, Sp. 2 cl.

**999 Research in Physical Education G Arr.**

(950) Su, A, W, Sp.

Research for thesis or dissertation purposes only.

## Physical Medicine

Office: 112 Dodd Hall, 472 West Eighth Avenue

Professor Johnson (Chairman); Associate Professors Hamilton, Nagi, and Stow; Assistant Professors Guyton, MacLean, Melvin, Spiegel, Taylor, and Waylonis.

### The Comprehensive Evaluation of the Patient

(See Med. 601, 602, 603.)

[Offered in cooperation with the Departments of Med., Ob. Gyn. Ophthal., Otol., Ped., Prev. Med., Psychiatry, Radiol., and Surg.]

[Interdisciplinary instruction and patient demonstrations stressing deviations, muscular weakness, electrodiagnosis, and total evaluation of severely disabled patients of all ages.]

**715 Medical Rehabilitation P 1**

1 month, offered Oct., Feb.

Prereq.: Med. 4th yr. standing.

Ambulation aids, electrodiagnosis, prosthetics, physical and occupational therapy, social service, as related to acute and chronic diseases. *Johnson and Staff*.

**735 Clinical Physical Medicine P 6, 12, 18 and Rehabilitation**

1, 2, or 3 months; offered all months.

Prereq.: Med. 3rd or 4th yr. standing and permission of instructor.

Ward experience in restorative medical procedures on individuals with severe chronic disabilities. *Guyton, Melvin, Johnson, Spiegel, and MacLean*.



**736 Clinical and Physiologic Bases of Physical Treatment** P G 3

Sp.

Prereq.: Permission of instructor.

The indications for, and choice of, physical modalities. *Melvin, Stow, and MacLean.*

**745 Biophysical Basis of Physical Treatment** P 6, 12, 18

1, 2, or 3 months; offered all months.

Prereq.: Med. 3rd or 4th yr. standing and permission of instructor.

The student will design and complete a laboratory or library research problem involving the biophysical aspects of physical diagnosis or treatment. *Johnson, Stow, and Melvin.*

**750 The Natural History of Disability** P G 3

A. 3 1-hr. cl.

Prereq.: Graduate or professional registration and permission of instructor.

An analysis of the nature and patterns of disability, the processes involved, and the factors influencing its course. *Nagi.*

**770 Instrumentation, Neurophysiology, Clinical Aspects of Electromyography** P G 3

W.

Prereq.: M.D. Degree enrolled in approved residency and permission of department chairman.

In depth study of the instrumentation and correlation of neurophysiology and clinical aspects of electromyography, including excitable membranes, biological potentials and nerve stimulation in clinical disorders. *Johnson, Melvin, and Stow.*

**799 Residency in Physical Medicine** P 18

Su, A, W, Sp.

12 months full time, beginning July 1.

Prereq.: Appointment as Resident, University Hospital.

Repeatable to a maximum of 216 cr. hrs.

Rotation through physical medicine and rehabilitation clinical inpatient and outpatient services; consultative, supervisory and teaching responsibilities in the patient-care team; rounds, conferences, seminars. *Johnson, Guyton, Spiegel, Melvin, and MacLean.*

**993 Individual Studies in Physical Medicine** G 3-5

(793) Su, A, W, Sp.

Prereq.: 735 and permission of instructor.

Minor investigations using electrodiagnostic techniques; biophysical, physiologic, and therapeutic effects of physical agents, and other medical rehabilitation techniques. *Johnson, Stow, Nagi, Melvin, and Taylor.*

**999 Research in Physical Medicine and Rehabilitation** G Arr.

Su, A, W, Sp.

Research for thesis purposes only.

# Physical Therapy

(School of Allied Medical Professions)

Office: 209 Dodd Hall, 472 West Eighth Avenue

Assistant Professor Woods (Division Director); Professor Johnson; Assistant Professor Burnett; Instructors Carlisle, Chidley, Pierson, and Starks.

**100 Introduction to Physical Therapy** U 2

(500) A. 2 cl.

A general orientation of physical therapy and its relation to medical services; medical ethics, medical terminology, personal relationships, institutional contracts, and patient management. *Woods.*

**480 Procedures I** U 3

A. 3 cl., 1 3-hr. lab.

Prereq.: Admission to Phys. Ther.

Not open to students with credit for 301, 302.

Professional orientation: introduction to the hospital setting and patient care; principles and techniques of basic body mechanics; bandaging and therapeutic massage.

**481 Procedures II** U 5

W. 4 cl., 2 2-hr. lab.

Prereq.: 480 or 301 and 302.

Not open to students with credit for 402 and 416.

Agents used in physical therapy: mechanical and physical properties; therapeutic application and physiological effects related to patients.

**482 Procedures III** U 3

(503) Sp. 1 cl., 2 2-hr. lab.

Prereq.: 481 or 402 and 416 or admission to Oc. Ther.

Not open to students with credit for 303.

Evaluation techniques and their usage in physical therapy, posture evaluation, goniometric range of motion recordings, manual muscle testing, functional tests and measurements.

**495 Medical Kinesiology** U 3

(600) W. 2 cl., 1 2-hr. lab.

Prereq.: Admission to School of Allied Medical Professions and permission of instructor.

Not open to students with credit for 303 or 304.

Biomechanics and pathomechanics in the analysis of human motion; emphasis on hand function; gait deviations; correlation of lecture and laboratory material with case presentations. *Burnett.*

**499 Selected Problems in Physical Therapy** U 3

(612) Sp. 2 cl., 1 1-hr. lab.

Prereq.: 480.

Not open to students with credit for 400.

Survey and analysis of selected problems in administration and supervision; introduction to scientific research. *Woods.*

- 520 Medical Science I** U 2  
*Sp. 2 cl.*  
*Prereq.: Admission to School of Allied Medical Professions.*  
*Not open to students with credit for 404.*

Principles, clinical aspects and therapeutic procedures related to orthopedics.

- 521 Medical Science II** U 2  
*A. 2 cl.*  
*Prereq.: Admission to School of Allied Medical Professions.*  
*Not open to students with credit for 404.*

Principles, clinical aspects and therapeutic procedures related to selected medical specialties.

- 522 Medical Science III** U 2  
*W. 2 cl.*  
*Prereq.: Admission to School of Allied Medical Professions.*  
*Not open to students with credit for 404.*

Lectures and clinical presentations giving an orientation to signs, symptoms, and therapeutic management of patients in related medical science fields.

- 530 Neuromuscular Disease** U 3  
*(603) W. 3 cl.*  
*Prereq.: Anat. 201.*  
*Not open to students with credit for 403.*

Survey of injury and disease of the central, peripheral, and autonomic nervous systems; presentation of clinical material.

- 541 Therapeutic Exercise I** U 3  
*(510) A. 2 cl., 2 2-hr. lab.*  
*Prereq.: Admission to Phys. Ther.*  
*Not open to students with credit for 310.*

Basic principles and techniques of therapeutic exercise. *Pierson.*

- 542 Therapeutic Exercise II** U 5  
*(607) W. 3 cl., 2 2-hr. lab.*  
*Prereq.: 541 or 310.*  
*Not open to students with credit for 407.*

Rehabilitation procedures for total restoration of the disabled; fundamental relationships and principles associated with functional exercise. *Pierson.*

- 543 Therapeutic Exercise III** U 4  
*(605) Sp. 2 cl., 2 2-hr. lab.*  
*Prereq.: 542 or 407.*  
*Not open to students with credit for 405.*

Theory and technique of exercise for the neurologically handicapped with carry-over into all areas of disability; integration and correlation of therapeutic exercise approaches. *Burnett.*

- 545 Developmental Sequence and Aging** U 3  
*(615) Sp. 3 cl.*  
*Prereq.: 542 or 407.*  
*Not open to students with credit for 415.*

Adaptations and modifications of physical therapy in treatment of pediatric and geriatric patients; measurement of levels of physical fitness. *Burnett.*

- 585 Physical Therapy Clinical Coordination** U 3  
*(608) Sp. 1 cl., 2 2-hr. lab.*  
*Prereq.: 542 or 407.*  
*Not open to students with credit for 435.*

Coordination and summary practice of all physical therapy procedures, being determined by the patient diagnosis and medical prescriptions; treatment, records, charts, and methods of evaluating and reporting.

- 586 Clinical Conference and Observation** U 2  
*(612) Su, A, W, Sp. 2 cl.*  
*Prereq.: Permission of instructor and completion of all major courses.*  
*Not open to students with credit for 486.*

Therapeutic problems arising from clinical practice in the field, and the observation of surgical procedures on patients most likely to receive physical therapy and rehabilitation. *Woods and Staff.*

- 587 Clinical Practice in Physical Therapy** U 18  
*(614) Su, A, W, Sp. 5 8-hr. lab.*  
*Prereq.: Permission of instructor and completion of all major courses.*  
*Not open to students with credit for 487.*

Clinical application of physical therapy techniques under supervision in physical therapy departments of affiliated hospitals; practice with assigned patients. *Woods and Staff.*

- 595 Seminar** U 3  
*W. 2 cl., 1 2-hr. lab.*  
*Prereq.: Permission of instructor.*  
*Not open to students with credit for 485.*

Integration of theory and preclinical practice; clinical affiliation planning. *Pierson.*

## Physics

Office: 1012 Physics Building, 174 West 18th Avenue

Professors Jossem (Chairman), Bell, Brown, Dickey, Edwards, Gaines, Hausman, Heer, Jastram, Korrings, Lande (Emeritus), Mills, Nelson, C. Nielsen, H. Nielsen, Oetjen, Pool, Prebus, Rao, Romanowski, Shaffer, J. Shaw, Alpheus Smith (Emeritus), Tanaka, and Wada; Associate Professors Arns, Erickson, Harris, Hsu, Kim, Kurbatov (Emeritus), Mate, Mulligan, Ploughe, Reibel, Riley, Seyler, Wigen, Yang, and Yaqub; Assistant Professors Blatt, Brim (Lima Branch), Chu, Donoghue, Petruzzella (Mansfield Branch), Reay, Sanderson, Sarwinski, and Tough.

- 101 Nature of the Physical World** U 5  
*(401) A, W. 4 cl., 1 2-hr. lab.*  
*Not open to students with credit for General Studies (431).*

A unified elementary non-mathematical description of the physical universe for cultural value, emphasizing scientific method and current topics. Laboratory demonstration and telescopic observation.



- 102 Nature of the Physical World U 5**  
 (402) *W, Sp. 4 cl., 1 2-hr. lab.*  
*Prereq.: 101.*  
*Not open to students with credit for General Studies (432).*  
 Continuation of 101.

- 111 General Physics: Mechanics and Heat U 5**  
 (411) *Su, A, W, Sp. 4 cl., 1 2-hr. lab.*  
*Prereq.: Eligibility for Math. 150.*

- 112 General Physics: Electricity, Magnetism, and Light U 5**  
 (412) *Su, A, W, Sp. 4 cl., 1 2-hr. lab.*  
*Prereq.: 111.*

- 113 General Physics: Modern Physics U 5**  
 (413) *Su, A, W, Sp. 4 cl., 1 2-hr. lab.*  
*Prereq.: 112.*

- 120 Descriptive Meteorology U 5**  
 (420) *Sp. 4 cl., 1 2-hr. lab.*  
 Descriptive treatment of local weather phenomena and commonly observed weather changes; laboratory includes instrumental observations, use of meteorological data, study of weather maps.

- 231 General Physics for Engineers and Physical Scientists: Mechanics U 5**  
 (531) *A, W, Sp. 4 cl., 1 2-hr. lab.*  
*Prereq.: 1 entrance unit of Physics or 111, concur. Math. 152.*  
*Not open to students with credit for (431).*

- 232 General Physics for Engineers and Physical Scientists: Heat, Sound, Light U 5**  
 (532) *Su, A, W, Sp. 4 cl., 1 2-hr. lab.*  
*Prereq.: 231 and Math. 152.*  
*Not open to students with credit for (432).*

- 233 General Physics for Engineers and Physical Scientists: Electricity, Magnetism U 5**  
 (533) *Su, A, W, Sp. 4 cl., 1 2-hr. lab.*  
*Prereq.: 231 and Math. 152.*  
*Not open to students with credit for (433).*

- 435 Intermediate Geometrical Optics U 3**  
 (505) *W. 3 cl.*  
*Prereq.: 111, 112, 113 and Math. 151.*  
*Not open to students with credit for 535.*  
 Ray optics of thick lenses, mirrors, prisms, and their combination; apertures and aberrations.

- 436 Intermediate Physical Optics U 3**  
 (506) *Sp. 3 cl.*  
*Prereq.: 111, 112, 113 and Math. 151.*  
*Not open to students with credit for 636.*  
 Wave theory of optical phenomena; applications.

- 437 Geometrical Optics Laboratory U 2**  
 (535) *W. 1 4-hr. lab.*  
*Prereq. or concur.: 435 or 535.*  
*Not open to students with credit for (635).*  
 Selected experiments in geometrical optics.

- 438 Physical Optics Laboratory U 2**  
 (536) *Sp. 1 4-hr. lab.*  
*Prereq. or concur.: 436 or 636.*  
*Not open to students with credit for (636).*  
 Selected experiments in physical optics.

- 472 Concepts and Methods of Modern Physics U 5**  
 (602) *W, Sp. 5 cl.*  
*Prereq.: 232-233 and Math. (533) or 254.*  
*Not open to Physics majors and students with credit for 551.*

Introductory analytical treatment of concepts and methods of modern Physics including topics from nuclear, atomic, molecular or solid state Physics; quantum-mechanical concepts.

- 501 Descriptive Acoustics U G 3**  
 (645) *A. 3 cl.*  
*Prereq.: Junior standing in Music, Speech, or Science Educ.*  
*Not open to Physics majors.*

Descriptive non-mathematical treatment of acoustics with applications to music and speech including: sources, propagation, reception, characteristics of sound; room acoustics; hearing; apparatus.

- 503\* General Meteorology U G 3**  
 (643) *W. 3 cl.*  
*Prereq.: 15 cr. hrs. of natural science including one of following: Agron. 240, Bot. 101, Geog. 240, Geol. (402), Physics 112 or 232, Zool. (402).*

Study of atmospheric phenomena; individual observation and prediction of weather events.

- 506 Basic Principles and Recent Advances in Physics U G 5**  
 (641) *Sp.*  
*Prereq.: Academic Year Science Institute students only.*

Primarily for high school physics teachers; a unified treatment of concepts and principles of classical physics together with selected topics in contemporary physics.

- 507 Physics Seminar for In-Service Science Teachers U G 3**  
 (637) *Su, A. 1 3-hr. cl.*  
*Prereq.: 15 cr. hrs. of Physics and teaching experience; permission of instructor.*

A course to deepen teachers' understanding of basic physical concepts and methods of treatment of selected problems; presentation will include lectures, discussions, demonstrations, and problem solving.

- 508 Physics Seminar for In-Service Science Teachers U G 3**  
 (638) *Su, W. 1 3-hr. cl.*  
*Prereq.: 507.*  
 Continuation of 507.

**509 Physics Seminar for In-Service U G 3  
Science Teachers**

(639) Su, Sp. 1 3-hr. cl.

Prereq.: 508.

Continuation of 508.

**514 Fundamentals of Radioactivity U G 4  
and Instrumentation**

(634) A. 3 lec., 1 3-hr. lab.

Prereq.: 2 qtrs. of college Physics or Chem. and 20 cr. hrs. of biological science or permission of instructor.

Not open to students majoring in Chem., Engr., or Physics.

Descriptive treatment of atomic and nuclear structure; physical properties of radioactive nuclei; instrumentation; radiation hazards and safety; introduction to applications of radioactivity.

**516 Intermediate Physics U G 3  
Laboratory**

Su, A, W, Sp. 2 3-hr. labs.

Prereq.: 112-113 or 232-233 and Math. 150.

Not open for graduate credit to students majoring in Physics.

Repeatable to a maximum of 9 cr. hrs.

Selected intermediate level experiments from basic areas of Physics.

**GENERAL PREREQUISITES FOR COURSES  
NUMBERED 520 TO 599**

Unless otherwise indicated, Physics 231-232-233 and Math. 254, or equiv.; not open for graduate credit to Physics majors.

**521 Intermediate Physical Mechanics U G 3**

(601) Su, A, W, Sp. 3 cl.

Not open for graduate credit to Physics majors.

Analytical treatment of vectors; kinematics and dynamics of particles; force fields; simple harmonic oscillator and modifications; emphasis on analytical methods used in other physics courses.

**531 Intermediate Electricity and U G 3  
Magnetism**

(608) W, Sp. 3 cl.

Prereq.: 521.

Not open for graduate credit to Physics majors.

Intermediate mathematical treatment of electric and magnetic fields; problem solving emphasized.

**535 Geometrical Optics U G 3**

(605) A. 3 cl.

Advanced theory of geometrical optics including thick lenses, types of mirrors, combinations of lenses and mirrors, apertures and aberrations in optical systems.

**541 Intermediate Heat U G 3**

(603) A, Sp. 3 cl.

Not open for graduate credit to Physics majors.

Introduction to theory of heat with applications.

**551 Introduction to Modern Physics U G 3**

(614) Su, A, W, Sp. 3 cl.

Not open to students with credit for 472.

Intermediate mathematical treatment, including: fundamental particles; qualitative concepts of quantum theory and their history; emission and absorption processes; atomic and molecular structure.

**571 Introduction to Nuclear Physics U G 3**

(615) A, W, Sp. 3 cl.

Prereq.: 521 and 551 or equiv.

Not open for graduate credit to Physics majors.

Properties of the atomic nucleus; disintegration processes; particles and photon emission; fission; fusion. Detection techniques for nuclear radiation; energy levels and selection rules.

**GENERAL PREREQUISITES FOR COURSES  
NUMBERED 600-699**

Unless otherwise stated, 521, 531, and two of 535, 541, or 551, plus Math. 255 or 556, or equiv.

**616 Advanced Physical Laboratory U G 3**

Su, A, W, Sp. 2 3-hr. labs.

Prereq.: 521, 531, and one of 535, 541, 551, 571.

Repeatable to a maximum of 24 cr. hrs.

Experiments selected from: acoustics; atomic physics; electricity, magnetism; electron physics; electronics; heat; thermodynamics; nuclear physics; optics; solid state; spectroscopy; X-rays. Independent work emphasized.

**621 Methods of Theoretical Physics U G 3**

(726) Su, A. 3 cl.

Analytical course coordinating methods of dynamics of particles and systems of particles, electrical circuits, wave motion, etc.; preparation for quantum mechanics.

**624† Wave Motion and Sound U G 3**

(709) A. 3 cl.

Prereq.: 521 and Math. 556.

Theory of wave motion; production, propagation and detection of sound waves; measurements and applications.

**632 Periodic and Transient Electric U G 3  
Currents**

(612) Su, Sp. 3 cl.

Prereq.: 521.

Study of response of circuits with constant parameters to both constant and variable voltages; electronic circuits and instruments used in physical research.

**636 Introductory Physical Optics U G 3**

(606) Su, W. 3 cl.

Introduction to diffraction; interference; and polarization phenomena. Applications in design and performance of optical instruments.

**651\* Physics of the Upper U G 3  
Atmosphere**

(648) A. 3 cl.

Prereq.: 521.

The structure of the upper atmosphere as obtained from studies of the ionosphere, ozonosphere, aurorae, meteors, and use of rockets.

**661 Electron Physics U G 3**

(610) W, Sp. 3 cl.

Prereq.: 521 and 551 or equiv.

Physical phenomena and elementary theory of solids; binding and energy bands of solids; electrical, thermal and magnetic properties of metals and semi-conductors.



**693 Individual Studies in Physics U G 1-15**(701) *Su, A, W, Sp.**Prereq.: Satisfactory advanced courses in experimental and theoretical physics and permission of instructor.**Repeatable.*

A course designed to give a properly qualified student opportunity for independent reading, study, or laboratory work in a specialized field of interest.

**GENERAL PREREQUISITES FOR COURSES  
NUMBERED 700-799**

Prerequisites include 15 cr. hrs. in courses 521-689; plus Math. 550 and 255 or 556, plus stated additional requirements, or equivalents.

**715\* Analysis of Physical Measurements U G 3**(730) *A. 3 cl.**Prereq.: 521, 551, and 6 cr. hrs. of advanced lab.*

Nature of physical measurements; types of data and their analytical treatment; curve fitting; errors; applications of analytical methods to typical physical problems.

**717 Nucleonic Measurements and Instrumentation U G 3**(733) *A, Sp. 2 3-hr. lab.**Prereq.: 571 and permission of instructor.**Not open to students with credit for (633).**Repeatable to a maximum of 6 cr. hrs.*

Nuclear measurements from the latest types of nuclear instruments; characteristic radiations of numerous radioactive sources. The neutron experiments center around a subcritical reactor.

**718 Nuclear Reactor Laboratory U G 3**(734) *W. 2 3-hr. labs.**Prereq.: 717, 773 and permission of instructor.**Repeatable to a maximum of 6 cr. hrs.*

Neutron diffusion, neutron shielding, radioactivity production, pile oscillation, reactor control, buckling and other pile parameters; critical reactor will be operated by student.

**721 Introduction to Theoretical Physics U G 3**(740) *A. 3 cl.**Prereq.: 521 and Math. 550.*

Fundamentals of classical mechanics including transformation of reference frames; dynamics of particles and collections; rigid rotators; Hamilton's principle; Lagrange's equations; vibration theory; special relativity; elasticity; fluid dynamics; wave motion.

**722 Introduction to Theoretical Physics U G 3**(741) *W. 3 cl.**Prereq.: 721.**Continuation of 721.***723 Introduction to Theoretical Physics U G 3**(742) *Sp. 3 cl.**Prereq.: 722.**Continuation of 722.***727 Methods of Quantum Mechanics I U G 3***Su, W. 3 cl.**Prereq.: 521, 551, and 621 or equiv.*

Introduction to Schrodinger and matrix techniques of quantum mechanics; perturbation methods; resonance; application to simple problems.

**728 Methods of Quantum Mechanics II U G 3***Sp. 3 cl.**Prereq.: 727.*

Continuation of 727 with applications to more complicated problems; quantum mechanics of atoms and molecules; approximate methods.

**733 Fundamentals of Electricity and Magnetism U G 3**(712) *A. 3 cl.**Prereq.: 521, 551, Math. 551.*

Mathematical theory of classical electricity and magnetism.

**734 Electromagnetic Field Phenomena U G 3**(713) *W. 3 cl.**Prereq.: 521, 733 and Math. 556.*

An introductory course in Maxwell's theory of the electromagnetic field.

**735 Electromagnetic Theory of Light U G 3**(714) *Sp. 3 cl.**Prereq.: 636 and 734.*

Mathematical treatment of physical optics.

**742 Kinetic Theory of Gases U G 3**(702) *Sp. 3 cl.**Prereq.: 541, and Math. 550 and 556.*

Introduction to kinetic theory of gases with applications to physical systems.

**743 Thermodynamics U G 3**(703) *Su, A. 3 cl.**Prereq.: 541 and Math. 550 and 556.**Not open to students with credit for (803), (804).*

Modern treatment of topics in physical thermodynamics including entropy, specific heats, third law, phase, and lattice changes, surface phenomena; applications to low temperature phenomena.

**744 Thermodynamics U G 3**(704) *W. 3 cl.**Prereq.: 743.**Continuation of 743.***751 Modern Atomic Spectroscopy U G 3**(718) *Su, A. 3 cl.**Prereq.: 521, 551.*

Modern theory of structure of the atom and quantum-mechanical treatment of origin of atomic spectra.

**753† X-ray Physics U G 3**(720) *W. 3 cl.**Prereq.: 751.*

Modern theory and experiment in X-ray emission, absorption, scattering, dispersion; application to solid state and nuclear physics.

**757 Spectra and Structure of Molecules U G 3**

(719) Sp. 3 cl.

Prereq.: 521 and 551.

Experimental methods and theory of molecular spectra; relation of spectra to molecular structure.

**761 Introduction to Theory of Solids U G 3**

(716) Sp. 3 cl.

Prereq.: 661.

Fundamental properties of solids with emphasis on conduction in metals and semiconductors.

**771 Fundamentals of Nuclear Physics U G 3**

(721) W. 3 cl.

Prereq.: 751.

Topics in nuclear research; beta decay, shell structure, internal conversion, resonance, scattering, elementary particles, angular correlation, collision dynamics. Concurrent course in quantum mechanics recommended.

**773 Nuclear Reactors and Neutron Physics U G 3**

(723) Sp. 3 cl.

Prereq.: 571 and 742.

Neutron sources; scattering and capture of neutrons; nuclear fission; resonance phenomena; material damage; diffusion; power production.

**775†\* Physics of Ionized Gases U G 3**

(711) Sp. 3 cl.

Prereq.: 531 and 742.

Elementary processes and collective behavior in plasmas; analysis of ion orbits, many-particle systems, oscillations and stability; cosmic phenomena, laboratory plasmas, and the thermonuclear problem.

**801 Seminar in Physics G 1**

(881) Su, A, W, Sp.

Prereq.: Acceptable specialized courses and permission of instructor.

Repeatable.

Seminars will be conducted by various members of the staff on topics of current interest in their fields of specialization. Students will participate in the presentation and discussion of material.

**816 Topics in Physics G 3-5**

Su, A, W, Sp. Arr.

Prereq.: 616 or equiv. and permission of instructor.

Repeatable to a maximum of 15 cr. hrs.

Laboratory and/or theoretical work on an individual basis on topics of current interest.

**821 Advanced Dynamics G 3**

(840) A. 3 cl.

Prereq.: 723 and Math. 551.

Starts with Lagrange's equation and includes variational theorems, Hamilton's canonical equations, general transformation theory.

**822 Advanced Dynamics G 3**

(841) Sp. 3 cl.

Prereq.: 821.

Continuation of 821. Selected topics in advanced dynamics.

**827 Quantum Mechanics G 3**

(817) A. 3 cl.

Prereq.: 751, Math. 550 and 556, Physics 727 and 721.

Advanced fundamental course including: physical bases; Schrodinger, matrix and operational formulations; approximate methods; transformation theory; relativistic modifications; hole theory, etc.

**828 Quantum Mechanics G 3**

(818) W. 3 cl.

Prereq.: 827.

Continuation of 827.

**829 Quantum Mechanics G 3**

(819) Sp. 3 cl.

Prereq.: 828.

Continuation of 828.

**834 Electromagnetic Field Theory G 3**

(805) W. 3 cl.

Prereq.: 734 and Math. 602.

Electro- and magnetic-statics; Maxwell's theory of electrodynamics; general classical theory of emission, propagation, and absorption of electromagnetic waves; boundary value problems; relativistic electrodynamics.

**835 Electromagnetic Field Theory G 3**

(806) Sp. 3 cl.

Prereq.: 834.

Continuation of 834.

**847 Statistical Mechanics G 3**

(824) W. 3 cl.

Prereq.: 742, 727 or 828 and 721.

Advanced treatment of fundamentals of classical and quantum statistical mechanics with application to contemporary problems.

**848 Statistical Mechanics G 3**

(825) Sp. 3 cl.

Prereq.: 847.

Continuation of 847.

**850†\* Line Spectra and Atomic Structure G 3**

(813) A. 3 cl.

Prereq.: 751, 727 or 828.

Advanced treatment of theory and interpretation of atomic spectra including contemporary problems.

**857\* Advanced Molecular Spectra I G 3**

(851) A. 3 cl.

Prereq.: 751, 757, and 728.

Advanced treatment of topics in theory and interpretation of electronic, vibration, rotational aspects of molecular spectra; emphasis on details of rotation-vibration spectra of polyatomic molecules.



**858\* Advanced Molecular Spectra II G 3**

(852) W. 3 cl.

Prereq.: 857.

Continuation of 857.

**863†\* Theory of the Solid State I G 3**

(833) W. 3 cl.

Prereq.: 761, 728 or 828, and Math. 620.

Modern theory of solid state including; classification of solids and theory of such physical properties as cohesion, specific heat, conductivity, and magnetism.

**864†\* Theory of the Solid State II G 3**

(834) Sp. 3 cl.

Prereq.: 863.

Continuation of 863.

**871†\* Theoretical Nuclear Physics I G 3**

(820) A. 3 cl.

Prereq.: 771 and 728 or 828.

Properties of nuclei; two-body problem; complex nuclei; interaction of radiation with nuclei; reaction theory; Beta-decay; meson theory, and mesons; extremely high energy physics.

**872†\* Theoretical Nuclear Physics II G 3**

(821) W. 3 cl.

Prereq.: 871.

Continuation of 871.

**873†\* Theoretical Nuclear Physics III G 3**

(822) Sp. 3 cl.

Prereq.: 872.

Continuation of 872.

**875\* Nuclear Spectroscopy G 3**

(823) Sp. 3 cl.

Prereq.: 751, 727, 728 or 828.

Advanced treatment of theory and interpretation of various aspects of nuclear spectroscopy including current topics.

**876\* Physics of Elementary Particles I G 3**

(846) A. 3 cl.

Prereq.: 771 and 829.

Properties of elementary particles; theory of strong and weak interactions.

**877\* Physics of Elementary Particles II G 3**

(847) W. 3 cl.

Prereq.: 876.

Continuation of 876.

**880 Advanced Topics in Physics G 3**

(860) Su, A. 3 cl.

Prereq.: Permission of instructor.

Repeatable.

An advanced treatment of some field of physics of current interest not presently covered in other courses. Topic to be announced for each quarter.

**881 Advanced Topics in Physics G 3**

(861) W. 3 cl.

Prereq.: Permission of instructor.

Repeatable.

Topic to be announced for each quarter.

**882 Advanced Topics in Physics G 3**

(862) Sp. 3 cl.

Prereq.: Permission of instructor.

Repeatable.

Topic to be announced for each quarter.

**885†\* Theory of Quantized Fields I G 3**

(843) A. 3 cl.

Prereq.: 829 and 821.

The concepts and methods of quantum field theory, both as a fundamental description of physical interactions and as a method for use in certain relativistic problems.

**886†\* Theory of Quantized Fields II G 3**

(844) W. 3 cl.

Prereq.: 885.

Continuation of 885.

**999 Research in Physics G Arr.**

(950) Su, A, W, Sp.

Research for thesis or dissertation purposes only.

## Physiological Chemistry

Office: 214 Hamilton Hall, 1645 Neil Avenue

Professors Cornwell (Chairman), Brown (Emeritus), Frajola, Johnson, Kruger, and Richardson; Associate Professors Alben, Allen, Brierley, Devor, Endahl, Fischer, Gruemer, McCluer, Nuenke, Rieseke, and Wikoff; Assistant Professors Addanki, Eyring, Merola, Sprecher, and Stoner.

**311 Physiological Chemistry**

Prereq.: Chem. 102 or 122 and enrollment or intended enrollment in a program of the School of Allied Medical Professions.

Students may not receive credit for both 311.01 and 311.02.

Human biochemistry and emphasis on metabolism and applications to clinical chemistry and human nutrition; pertinent organic chemistry will be included; laboratory to illustrate general techniques with emphasis on food composition. Devor and Staff.

**311.01 Lecture and Lab U 5**

A. 3 cl., 1 3-hr. lab.

**311.02 Lecture U 4**

A. 3 cl.

**312 Physiological Chemistry**

Students may not receive credit for both 312.01 and 312.02.

A continuation of 311.

**312.01 Lecture and Lab U 5**

W. 3 cl., 1 3-hr. lab.

Prereq.: 311.01.

**312.02 Lecture U 4**

W. 3 cl.

Prereq.: 311.01 or 311.02.

**540 Physiological Chemistry P 6**

(632) Sp. 4 cl., 2 3-hr. lab.

Prereq.: Dent. 1st yr. standing, Chem. 231, 232.

Chemistry of the carbohydrates, lipids, and proteins; biochemistry of digestion, absorption, metabolism, and excretion. Devor and Staff.

**545 Physiological Chemistry P 2**  
**(Human Nutrition)**

(633) A. 2 cl.

Prereq.: Dent. 1st yr. standing, 540.

The elements of human nutrition with a special emphasis on the relation of diet to dentistry.

**601 Physiological Chemistry P G 8**

A. 150 cl. or lab. hrs.

Prereq.: Med. 1st yr. standing or permission of instructor.

Chemistry of carbohydrates, lipids, and proteins; biochemistry of human digestion, nutrition, metabolism and excretion; correlations between normal human metabolism and the biochemistry and genetic control of disease processes. Cornwell, Richardson, Nuenke, and Staff.

**602 Physiological Chemistry P G 3**

W. 2 cl. hrs. and lab.

Continuation of 601; experimental studies in biochemical control mechanics in normal and pathological states including nutritional deficiencies.

**603 Physiological Chemistry P 1**

Sp. 1 cl.

Prereq.: Med. 1st yr. standing and 602.

Special reading in physiological chemistry. Nuenke and Staff.

**611 Physiological Chemistry U G 5**

A. 3 cl., 2 s-hr. lab.

Prereq.: Chem. 212; and Chem. 242, 244, or 253, 254, 255, or equiv.

Chemistry of carbohydrates, lipids, and proteins. Rieske, Merola, Sprecher, and Staff.

**612 Physiological Chemistry U G 5**

W. 3 cl., 2 s-hr. lab.

Prereq.: 611.

Biochemistry of digestion, metabolism, and excretion. Rieske, Merola, Sprecher, and Staff.

**613 Physiological Chemistry U G 5**

(603) Sp. 3 cl., 2 s-hr. lab.

Prereq.: 612.

Intermediary metabolism, specialized tissues, blood and other body fluids. Rieske, Merola, Sprecher, and Staff.

**701 A Biochemical Approach to the Study of Disease P 6**

(720) 1 month, Jan., May.

Prereq.: Med. 3rd or 4th yr. standing.

Subcellular organization, model systems in disease, injury and inflammation, toxic agents, deficiency states, genes, enzymes and disease, biochemical changes in growth. Kruger.

**725 Biochemical Biography U G 1**

(715) Sp. 1 cl.

Prereq.: 612.

Wikoff.

**734† Biochemical Methods of Analysis (Food Analysis) U G 5**

(614) W. 2 cl., 3 s-hr. lab.

Prereq.: 611 or equiv.

The quantitative analysis of the proteins, fats, and carbohydrates; special methods for the analysis of biological materials. Devor and Staff.

**793 Individual Studies in Physiological Chemistry**

3 or 4 months; offered all months. P 6, 12, or 18 Su, A, W, Sp. G 2-15

Prereq.: 602, 612 or equiv. and permission of instructor.

Repeatable to a maximum of 15 cr. hrs. for graduate credit; must repeat to 18 or 24 cr. hrs. for professional credit.

Qualified students may avail themselves of the facilities of the department for conducting a minor investigation under the direction of a senior staff member.

**821 Advanced Physiological Chemistry G 3**

A. 3 cl.

Prereq.: 602 or 612 or equiv., Chem. 331, 332, 333 or permission of instructor.

An advanced treatment of the chemistry of the carbohydrates, proteins, and steroids. Alben, Brierley, Rieske, and Staff.

**822 Advanced Physiological Chemistry G 3**

W. 3 cl.

Prereq.: 602 or 612 or equiv., Chem. 331, 332, 333 or permission of instructor.

An advanced treatment of the chemistry of the lipids, and intermediary metabolism. Alben, Brierley, Rieske, and Staff.

**823 Advanced Physiological Chemistry G 3**

Sp. 3 cl.

Prereq.: 602 or 612 or equiv., Chem. 331, 332, 333 or permission of instructor.

Continuation of the biochemistry of intermediary metabolism. Alben, Brierley, Rieske, and Staff.

**830 Physical Methods in Biochemistry G 3**

(702) W. 2 cl., 1 s-hr. lab.

Prereq.: 821, Physical Chemistry, or permission of instructor.

A practical and theoretical introduction to the use of the analytical ultracentrifuge, Tiselius electrophoresis, spectroscopy, chromatography and radioisotopes. Alben and Staff.

**835 Biochemical Preparations and Techniques G 3**

(825) A. 9 hrs. conf. and lab.

Prereq.: 821, 822 or concur.

Advanced course in biological preparations and laboratory techniques; isolation of carbohydrates, lipids, proteins, enzymes, and hormones.

**850 Seminar G 1**

(815) A, W, Sp. 1 cl.

Prereq. or concur.: 601 or 611 or equiv.

Repeatable to a maximum of 9 cr. hrs.

Required of all graduate students majoring in Physiol. Chem.

Cornwell and Staff.

**855 Seminar in Physiological Chemistry G 2**

(812) Su, A, W, Sp.

Repeatable to a maximum of 8 cr. hrs.

Topic to be announced.



- 898 **Interdepartmental Seminar in Nutrition and Food Technology** G 1  
 Sp.  
 (See *Interdepartmental Seminars, Book 18.*)

- 999 **Research in Physiological Chemistry** G Arr.  
 (950) Su, A, W, Sp.  
 Research for thesis or dissertation purposes only.

## Physiological Optics

Office: 111 Optometry Building, 338 West 10th Avenue

Professors Hebbard (Chairman), Blackwell, and Fry; Associate Professors Eskridge, Hill, Smith, and Wild; Assistant Professors Bailey, Fugate, Haines (Emeritus), Mote, and Reese; Instructors Kerr and Warshaw.

- 511 **Introduction to Physiological Optics I** U G 5  
 (611) Sp. 4 cl., 1 2-hr. lab.  
 Prereq.: *Physics 435 and Anat. 608.*  
 Not for graduate credit to students majoring in *Physiol. Opt.*

The eye as an optical instrument; the refracting mechanism; the mechanism of accommodation and pupillary contraction; blur of the retinal image; stray light in the eye. *Kerr.*

- 512 **Introduction to Physiological Optics II** U G 5  
 (612) A. 4 cl., 1 2-hr. lab.  
 Prereq.: 511.  
 Not for graduate credit to students majoring in *Physiol. Opt.*

The motility of the eye; the structure and innervation of the extraocular muscles; the center of rotation and analysis and description of eye movements. *Kerr.*

- 520 **Measurement and Specification of Visual Stimuli** U G 4  
 (620) A. 3 cl., 1 2-hr. lab.  
 Prereq.: *Optom. 2nd yr. standing and 511.*  
 Not for graduate credit to students majoring in *Physiol. Opt.*

Light sources; diffusely transmitting and reflecting surfaces and scattering of light by a medium; principles of photometry and colorimetry as applied to visual stimuli. *Wild.*

- 608 **Anatomy of the Eye** U G 5  
 Sp. 2 cl., 2 3-hr. lab.  
 Prereq.: 1st yr. *Optom. or Zool. 530 and permission of instructor.*

Human gross anatomy of the head and neck with special emphasis on the eye and orbit; histology and embryology of the eye and associated structures. *Hill.*

- 613 **Intermediate Physiological Optics I** U G 5  
 W. 4 cl., 1 2-hr. lab.  
 Prereq.: 512.

Monocular sensory mechanisms of vision; analysis and specification of visual stimuli; photoreception and retino-cortical transmission; adaptation of photoreceptors; flicker; brightness discrimination; and color-vision. *Kerr.*

- 614 **Intermediate Physiological Optics II** U G 3  
 W. 3 cl.  
 Prereq.: 512.

Circulation and metabolism of the eye; intra-ocular pressure; lacrimal system; movements and functions of the eyelids. *Hill.*

- 693 **Individual Studies in Physiological Optics** U G 1-15  
 (701) Su, A, W, Sp.  
 Prereq.: Permission of department chairman.  
 Repeatable to a maximum of 15 cr. hrs.

A properly qualified student may perform a minor investigation or add to his knowledge and technique.

- 715 **Intermediate Physiological Optics III** U G 5  
 Sp. 4 cl., 1 2-hr. lab.  
 Prereq.: *Optom. 2nd yr. standing and 613.*

Projection of visual impressions; the horopter, retinal correspondence; binocular integration of hue and brilliance. *Eskridge.*

- 716 **Intermediate Physiological Optics IV** U G 5  
 W. 3 cl., 1 2-hr. lab.  
 Prereq.: 715.

Visual perception of color, illumination, figure-ground relations, size, shape, direction, distance, motion, time, and complex patterns. *Eskridge.*

- 730 **Principles of Lighting** U G 5  
 A. 4 cl., 1 2-hr. lab.  
 Prereq.: 716.

The effect of the distribution of light in a given environment upon efficiency, comfort, and safety; selection and arrangement of sources and light control.

- 731 **Vision in Industry** U G 5  
 W. 5 cl.  
 Prereq.: 730.

Visual testing in industry; relation of vision to performing a task; visual requirements for licenses; eye hazards and protection; compensation for loss of vision. *Bailey, Kerr, and Warshaw.*

- 732 **Vision in Schools** U G 5  
 Sp. 3 cl., 6 hr. lab.  
 Prereq.: 730.

Visual survey methods; the prevalence of visual anomalies and eye diseases in children; basic visual skills required in school and methods for their improvement. *Bailey, Kerr, and Warshaw.*

- 795 **Seminar** U G 1-3  
 Su, A, W, Sp. 1-3 cl.  
 Prereq.: Permission of instructor.  
 Repeatable to a maximum of 15 cr. hrs.

A series of seminars dealing with new developments in the various phases of physiological optics.

**801 Advanced Physiological Optics I G 5**

A. 3 cl., 2 2-hr. lab.

Prereq.: 716.

The ocular image-forming mechanism; accommodation and pupil contraction, aberrations, stray light entopic phenomena; shape, size, distortion; retinal illuminance and blur. *Fry*.

**802 Advanced Physiological Optics II G 5**

W. 3 cl., 2 2-hr. lab.

Prereq.: 801.

Fixation disparity; photochemistry and electrophysiology of photo-receptors; luminosity; color-mixture; retinal-cortical transmission; simultaneous contrast; visibility; adaptation; after images. *Fry*.

**803 Advanced Physiological Optics III G 5**

Sp. 3 cl., 2 2-hr. lab.

Prereq.: 802.

Binocular integration of hue and brilliance, fusional movements, fixation, retinal correspondence, visual perception of figure-ground relations, light, color, illumination, size, shape, direction, distance, and motion. *Fry*.

**810 Image Evaluation G 5**

A. 5 cl.

Prereq.: 613, Physics 435 and 436.

An analysis of the causes of image impairment in the human eye and other optical systems; objective methods of assessing aberrations and blur; methods of image enhancement. *Fry*.

**811 Mechanisms Subserving Color Vision G 5**

W. 5 cl.

Prereq.: 613.

Theoretical basis for chromatic adaptation, chromatic contrast and induction, color blindness, and other color phenomena; theory of the laws of color mixture. *Fry*.

**812 Advanced Neurophysiology of the Visual System G 5**

A. 4 cl., 1 2-hr. lab.

Prereq.: 613, 614, 715, and 716.

The coding and transmission of visual information in the direct and accessory pathways of vertebrates and invertebrates. *Hill*.

**813 Advanced Physiology of the Eye G 5**

A. 4 cl., 1 2-hr. lab.

Prereq.: 613 and 614.

Recent developments in the respiration, metabolism and mechanics of ocular tissues and the aqueous dynamics of the eye. *Hill*.

**999 Research in Physiological Optics G Arr.**

(950) Su, A, W, Sp.

Research for thesis or dissertation purposes only.

**Physiology**

Office: 312 Hamilton Hall, 1645 Neil Avenue

Professors Little (Chairman), Angerer, Bozler, Grubbs, Hiatt, Lessler, Myers, and Weiss; Associate Professors Beman, Brownell, LeBrie, Lipetz, Lipsky, Nishikawara, Pieper, Smith, and Stow; Assistant Professors Allison, Billings, Clancy, Grossie, Hanson, Hendrich, Kunz, Mathews, Michael, and Paul; Instructors Blair and Yaple.

For related courses see Biology.

**311 Principles of Human Physiology I U 5**

(506) A, Sp. 4 cl., 1 2-hr. lab.

Prereq.: 2 qtrs. Chem., Anat. 200 or Zool. 101, or permission of instructor.

Open only to students in College of Medicine or College of Pharmacy.

Credit not given for 311 without 312.

Not open to students with credit for 110, 421, or 422.

First of a two-quarter sequence covering the following areas of physiology: neuromuscular, heart and circulation, endocrine, brain and special senses, body fluids and kidney, respiration, digestion, temperature control, and metabolism. *Angerer and Staff*.

**312 Principles of Human Physiology II U 5**

(507) Su, W. 4 cl., 1 2-hr. lab.

Prereq.: 311.

Not open to students with credit for 110, 421, or 422.

Continuation of 311. *Angerer and Staff*.**601 Advanced Mammalian Physiology I P G 5**

A. 4 cl., 1 lab.

Prereq.: Inorganic and Organic Chem., Physics 111, 112, 113 or equiv., and 1 yr. Biol. Sc. or permission of instructor.

Credit for 601 not given without 602; not for graduate credit to students majoring in Physiol.; not open to students with credit for 516 or 517.

First of a two-quarter sequence presenting the following areas of physiology: neuromuscular, heart and circulation, endocrine, brain and special senses, body fluids and kidney, respiration, digestion, temperature control, and metabolism.

**602 Advanced Mammalian Physiology II P G 5**

W. 4 cl., 1 lab.

Prereq.: 601.

Not for graduate credit to students majoring in Physiol.; not open to students with credit for 517.

Continuation of 601.

**604 Advanced Physiology P G 6**

A. 4 cl., 2 lab.

Prereq.: Dent. 2nd yr. standing.

The cardiovascular system including blood, neuromuscular system, body fluids, and excretion. *Lipsky and Staff*.

**605 Advanced Physiology P G 6**

W. 5 cl., 1 lab.

Prereq.: Dent. 2nd yr. standing and 604 or equiv.

The central nervous system and special senses, respiration, digestion, metabolism, the endocrines, and reproduction; continuation of 604. *Lipsky and Staff*.



**635 Human Physiology I** P G 7  
W. 5 cl., and labs.

*Prereq.: Med. 1st yr. standing.*

First of a two-quarter sequence presenting the following areas of Physiology: Neuromuscular system, reflexes, respiration, special senses, cardiovascular system, digestion, kidney, endocrine, and central nervous system. *Little and Staff.*

**636 Human Physiology II** P G 8  
Sp. 5 cl., and labs.

*Prereq.: 635.*

Continuation of 635. *Little and Staff.*

**645†\* Principles of Biophysics** U G 3  
A. 3 cl.

*Prereq.: 311, 312 Elementary Physiol. or equiv. and 1 yr. of college Physics or permission of instructor.*

A study of physical systems in relation to biological phenomena, with specific illustrations in the application of mechanics, heat, light, sound, electricity, hydraulics, etc.

**793 Individual Studies in Physiology** U P G 3-18  
Su, A, W, Sp.

*Prereq.: Permission of instructor.*

Reading, conferences, laboratory work by individual arrangement with qualified students who desire more intensive and specialized study than is available in other courses.

**823 Cellular and Comparative Physiology** G 5  
A. 4 cl., 1 lab.

*Prereq.: 1 yr. each of Biol., Physics, and Organic Chem., and permission of instructor.*

*Not open to students with credit for 623.*

Interactions between cells and environment in cell division, differentiation, senescence, and death; the regulation and control of cellular function. *Lessler.*

**825 Advanced Human Physiology I** G 7  
(725) W. 5 cl., and labs.

*Prereq.: Graduate standing in Physiol., permission of department chairman.*

*Credit for 825 not given without 826.*

First of a two-quarter sequence presenting the systematic study of the basic mammalian organ systems and their interactions. *Little and Staff.*

**826 Advanced Human Physiology II** G 8  
(726) Sp. 5 cl., and labs.

Continuation of 825. *Little and Staff.*

**828 Advanced Cellular and General Physiology** G 5  
Sp. 4 cl., 1 3-hr. lab. arr.

*Prereq.: Chem. 571 or equiv., Physics 112 or equiv.; Physiol. 823 or Biol. 640; Physiol. Chem. 611, 612 or equiv.; permission of instructor.*

Current concepts of ultrastructures and their function in various protoplasmic systems: membrane phenomena; excitatory processes; energy utilization in various kinds of cells. *Angerer.*

**830 Endocrinology** G 5  
Sp. 4 cl., 1 lab.

*Prereq.: 311 and 312, Organic Chem. and permission of instructor.*

*Not open to students with credit for 630.*

A study of functions of the thyroid, parathyroid, pituitary, adrenal, pancreas, gonads, and other organs with possible endocrine functions. *Brownell, Nishikawara, and Staff.*

**840 Environmental Physiology I** G 3  
(740) A. 3 cl.

*Prereq.: M.D. Degree or graduate standing and 601 and 602 or equiv., and permission of instructor.*

Physiology of the gaseous environment. *Billings and Hiatt.*

**841 Environmental Physiology II** G 3  
W. 3 cl.

*Prereq.: M.D. Degree or graduate standing and 601 and 602 or equiv., and permission of instructor.*

Physiology of the electromagnetic environment. *Billings and Hiatt.*

**842 Environmental Physiology III** G 3  
Sp. 3 cl.

*Prereq.: M.D. Degree or graduate standing and 601 and 602 or equiv., and permission of instructor.*

Physiology of the kinetic environment. *Billings and Hiatt.*

**846 Radiation Biophysics** G 5  
A. 5 cl.

*Prereq.: 1 yr. each of college Biol., Math., Physics, and Physiol. and Physiol. Chem. 601, 602 or 611, 612 or equiv., and permission of instructor.*

*Not open to students with credit for 646.*

Stable and radioactive isotopes; biological effects of ionizing radiation. *Myers and Staff.*

**848 Physical Instrumentation for Biologists** G 3  
A. 1 cl., 2 lab.

*Prereq.: Elementary Physiol. and 1 yr. college Physics or permission of instructor.*

*Not open to students with credit for 648.*

The theory and practical application of physical instruments used in biological studies, including elementary electronics. *Stow.*

**850 Seminar in Physiology** G 2  
(815) Su, A, W, Sp.

*Repeatable to a maximum of 118 cr. hrs.*

**907 Advanced Studies in Physiology** G 3 or 5  
Su, A, W, Sp.

*Prereq.: 601 and 602 or equiv. or 516 and 517 or equiv.*

Quarter schedule of topics to be announced.

**907.01 Neuromuscular System**

*Bozler and Grossie.*

**907.02 Cardiovascular Physiology**

*Little, Pieper, Hanson, Paul, and Clancy.*

**907.03 Adaptation to Extreme Environments**

*Hiatt and Weiss.*

- 907.04 Digestion and Metabolism  
*Grubbs and Beman.*
- 907.05 Physico-Chemical (General) Physiology  
*Angerer and Lessler.*
- 907.06 Biophysics  
*Stow.*
- 907.07 Endocrinology  
*Nishikawara, Brownell, and Hendrich.*
- 907.08 Sensory Electrophysiology  
*Lipetz and Michael.*
- 907.09 Avian Physiology  
*Weiss.*
- 907.10 Renal Physiology  
*LeBrie.*
- 907.11 Respiration Physiology  
*Lipsky and Smith.*
- 907.12 Biological Controls  
*Kunz.*

## 999 Research in Physiology G Arr.

(950) *Su, A, W, Sp.*

Research for thesis or dissertation purposes only.

## Plant Pathology

Office: 210 Botany and Zoology Building, 1735 Neil Avenue.

Professors Deep (Chairman), Alexander, Allison, Ellett, Janson, Leben, Schmitthenner, and Williams (Associate Chairman, Wooster); Associate Professors Herr and Partyka; Assistant Professors Gordon, Hoitink, Jones, Louie, and Troxel.

### GENERAL PREREQUISITES FOR COURSES NUMBERED 300 AND 400

Unless otherwise indicated, the prerequisites for 300 and 400 courses are 90 cr. hrs. in collegiate courses, exclusive of ROTC and Phys. Ed.; or specified course(s) numbered 100-399.

## 470 General Plant Pathology U 5

(519) *A, Sp. 3 cl., 2 2-hr. lab.*

*Prereq.: Bot. 101 or 102.*

An introduction to diseases of plants. *Deep, Ellett, and Troxel.*

## 471 Diseases of Ornamentals U 3

(649) *W. 1 1-hr. cl., 2 2-hr. lab.*

*Prereq.: 470.*

A detailed study of important diseases of floral and woody ornamental plants; their cause, distribution, severity, importance, and specific control measures. *Deep.*

### GENERAL PREREQUISITES FOR COURSES NUMBERED 600

Unless otherwise indicated, the prerequisites for 600 courses are 15 cr. hrs. in courses in the same discipline numbered 300 or higher, or 10 cr. hrs. in courses numbered 300 or higher, in the same discipline, plus 10 cr. hrs. in courses numbered 300 or higher in specified allied disciplines.

## 670 Plant Pathology U G 5

(671) *W. 3 cl., 2 2-hr. lab.*

*Prereq.: Bot. 101 or 102 or 500, 15 additional cr. hrs. in Biol. Sc.*

*Not open to students with credit for 470 or 871.*

*Not open to students majoring in Plant Path.*

Representative plant diseases are studied with emphasis on general principles of disease development and control. *Troxel.*

## 671 Diseases of Cereal and Forage Crops U G 3

(651) *W. 3 2-hr. cl.*

*Prereq.: 470 or 670, 10 additional cr. hrs. in Biol. Sc.*

A detailed study of important cereal and forage crop diseases; their cause, distribution, severity, importance, and specific control measures.

## 672 Diseases of Vegetable Crops U G 3

(652) *Sp. 3 2-hr. cl.*

*Prereq.: 470 or 670, 10 additional cr. hrs. in Biol. Sc.*

A detailed study of important vegetable crop diseases; their cause, distribution, severity, importance, and specific control measures.

## 675 Diseases of Fruit Crops U G 3

(650) *A. 3 2-hr. cl.*

*Prereq.: 470 or 670, 10 additional cr. hrs. in Biol. Sc.*

A detailed study of important tree and small fruit crop diseases; their cause, distribution, severity, and specific control measures.

## 693 Individual Studies U G 1-5

*Su, A, W, Sp.*

*Prereq.: Permission of instructor.*

*Repeatable to a maximum of 10 cr. hrs.*

Problems may be selected in the various areas of plant pathology.

### GENERAL PREREQUISITES FOR COURSES NUMBERED 800 AND 900

Unless otherwise indicated, the prerequisites for 800 and 900 courses are 30 cr. hrs. in courses in the same discipline, or 20 cr. hrs. in the same discipline, plus 25 cr. hrs. in specified allied disciplines.

## 871 Principles of Plant Pathology G 3

(850) *W. 3 2-hr. cl.*

*Prereq.: 671 or 672 or 675, and 27 additional cr. hrs. in Biol. Sc.*

The basic factors governing the development of plant diseases, including host-parasite relationships, effect of environment on disease development, and the nature of disease resistance.

## 872+\* Bacterial Plant Pathogens G 3

(660) *Sp. 2 cl., 1 2-hr. lab.*

*Prereq.: 470 or 670, Microbiol. 607, and 20 additional cr. hrs. in Biol. Sc.*

Representative types of bacterial plant diseases and factors affecting their control, severity, distribution, and economic importance; methods used in studying plant pathogenic bacteria. *Troxel.*

## 873\* Plant Virus Diseases G 3

(666) *Sp. 2 cl., 1 2-hr. lab.*

*Prereq.: 470 or 670, and 25 additional cr. hrs. in Biol. Sc.*



A study of representative types of plant virus diseases; factors affecting their control, severity, distribution, and economic importance. Methods used in studying plant viruses. *Troxel*.

## 874 Nematode Diseases of Plants G 5

(751) A. 2 cl., 2 2-hr. lab., several Saturday field trips.

Prereq.: 470 or 670, and 25 additional cr. hrs. in Biol. Sc.

Bionomics and control methods of representative plant diseases caused by nematodes. Methods used in studying plant parasitic nematodes.

## 879 Seminar G 1

(815) A, W, Sp.

Prereq.: Permission of instructor.

Repeatable.

Deep.

## 999 Research G Arr.

Su, A, W, Sp.

Research for thesis or dissertation purposes only.

## Polish

Office: 316 University Hall, 216 North Oval Drive

Associate Professor Krzyzanowski.

## 601\* Polish U G 3

A. 3 cl.

Prereq.: Russ. 103 or 112 or permission of instructor.

## 602\* Polish U G 3

W. 3 cl.

Prereq.: 601.

## 603\* Polish U G 3

Sp. 3 cl.

Prereq.: 602.

## 604†\* Intermediate Polish U G 3

A. 3 cl.

Prereq.: 603 or equiv.

## 605†\* Intermediate Polish U G 3

W. 3 cl.

Prereq.: 604 or permission of instructor.

Reading texts of moderate difficulty, conversation, simple compositions.

## 606†\* Intermediate Polish U G 3

Sp. 3 cl.

Prereq.: 605 or permission of instructor.

Reading from modern Polish literature, practice in writing and speaking.

## 612†\* Study Tour of Poland U G 15

Su (1st term), 2nd term in Poland.

Prereq.: 605 or equiv. and permission of department chairman.

Students will receive advanced work in conversation and reading in preparation for the tour; in Poland only Polish will be spoken; daily instruction by tour leaders.

## 620†\* Polish Literature in English U G 5 Translation

A. 3 cl.

Polish literature from the Medieval Period to 1864. The Medieval period, renaissance, baroque, classicism, romanticism. Emphasis on Kochanowski, Mickiewicz, Slowacki, Krasinski, Norwid, Krzyzanowski.

## 621†\* Polish Literature in English U G 5 Translation

W. 3 cl.

Modern Polish literature from 1864 to the present; emphasis on Positivism, Realism, and Symbolism; novels of Prus, Sienkiewicz, Zeromski, and Reymont. *Krzyzanowski*.

## Political Science

Office: 100 University Hall, 216 North Oval Drive

Professors Herson (Chairman), Aumann, Flinn, Heimerberger (Emeritus), Helms (Emeritus), Mansfield (Emeritus), Robinson, Spencer (Emeritus), Spitz, and Walker (Emeritus); Associate Professors Hale, Kettler, Nemzer, and Ripley; Adjunct Associate Professors Gibson (Lima), and Sani; Assistant Professors Axline, Burgess, Hofstetter, Liddle, Rainey, Richardson, Stegenga, and Stewart.

## 100 American National Government U 5

(401) Su, A, W, Sp. 5 cl.

Not open to students with credit for 265.

Introductory study of constitutional principles (federalism, civil liberty, judicial review); political processes (parties, elections, legislative process); problems of national policy in selected areas of interest.

## 200 Government of the United States U 5

(508) W. 5 cl.

Prereq.: 1 course in Pol. Sc.

Not open to students with credit for 100.

An intermediate study of American national government, primarily for prospective majors in the social sciences, and for pre-law students.

## 205 American State Government U 5

(510) Su, A, W, Sp. 5 cl.

Prereq.: 1 course in Pol. Sc.

A study of the organization and functions of the states and their municipal subdivisions in the United States.

## 225 Foreign Governments and Politics U 5

(509) Su, A, W, Sp. 5 cl.

Prereq.: 1 course in Pol. Sc. or Hist. 123, or Hist. 101-102.

A comparative examination of the governmental systems and political processes of selected European and non-western countries.

## 245 International Tensions U 5

(530) Su, A, W, Sp. 5 cl.

Prereq.: 2nd yr. standing.

Causes of international tensions and conflicts; international security organizations; basic issues in world politics.

**265 Fundamentals of Government U 5**(507) *Su, A, W, Sp. 5 cl.**Prereq.: Hist. 123.**Not open to students with credit for 100.*

A study of political ideas, institutions, processes and problems, presenting comparatively the leading types of government in the modern world.

**275† Introduction to Political Science U 5**(599) *A, W, Sp. 5 cl.**Not open to students with credit in Pol. Sc.*

An introductory study of some important political ideas, institutions, problems and practices, including constitutionalism, democracy, authoritarianism, representation, political parties, and the legislative process.

**378 Political Decision Making U 5***Sp. 3 cl., 1 lab.*

An introduction to decision-making and policy-making analysis, with emphasis on situational, individual, and organizational factors that explain decision and policy outcomes.

**505 American Municipal Government U G 5**(607) *A. 5 cl.*

A study of municipalities in United States, their social significance, governmental structure; and experience with government by council, mayor, commission, and manager.

**506† Government of Ohio U G 3**(609) *W. 3 cl.*

Constitution, structure, and functions: the electoral system; finance and personnel; judiciary and law enforcement; organization and conduct of administrative programs; state relations with local governments.

**520† The National Government and the National Economy U G 3**(618) *Sp. 3 cl.**Prereq.: 100 or 265 and 10 cr. hrs. in Econ.*

A study of the interaction of economic and political powers illustrated in major contemporary issues of national affairs.

**540 Latin American Government and Politics U G 5**(627) *A. 5 cl.*

A study of political processes, institutions, and groups in Latin America, with emphasis on constitutional, geographical, social, and economic environment in which they operate.

**545 Contemporary International Politics U G 5**(613) *Su, A, W, Sp. 5 cl.*

Political relations among states; methods and goals of diplomacy; current problems in major areas of tension; tendencies toward administrative, judicial, and legislative world-organization.

**559† Regional Patterns in International Politics: The Far East U G 5**(652A) *Sp. 5 cl.*

Basic power concepts, political institutions, and international relations of the Far East.

**560† Regional Patterns in International Politics: The Middle East U G 5**(652B) *A. 5 cl.*

Basic power concepts, political institutions, and international relations of the Middle East.

**561 Regional Patterns in International Politics: Central Europe U G 5**(652C) *Sp. 5 cl.*

Basic power concepts, political institutions, and international relations of Central Europe.

**562 Regional Patterns in International Politics: Latin America U G 5**(652D) *W. 5 cl.*

Basic power concepts, political institutions, and international relations of Latin America.

**563† Regional Patterns in International Politics: Africa U G 5**(652E) *Sp. 5 cl.*

Basic power concepts, political institutions, and international relations of Africa.

**565 Introduction to Political Theory U G 5**(601) *A, Sp. 5 cl.*

An inquiry into the major problems of political philosophy; the legitimacy of governments, forms and institutions, stability and change, freedom and control of power.

**573 American Political Ideas U G 3**(624) *W. 3 cl.*

An analysis of American ideas on law and government, authority and liberty, oligarchy and democracy, from the Puritans to the present day.

**575 American Political Parties and Pressure Groups U G 5**(635) *Su, A, Sp. 5 cl.*

The organization, programs, and campaign methods of political parties and pressure groups; methods of nomination, suffrage, qualifications, campaign finance, and the conduct of elections.

**594 Contemporary Political Problems U 5**(600) *A, W, Sp. 5 cl.**Repeatable to a maximum of 10 cr. hrs.**A. To be announced.**W. To be announced.**Sp. To be announced.*

#### GENERAL PREREQUISITES FOR COURSES NUMBERED 600 AND 700

Unless otherwise indicated the prerequisites for 600 and 700 courses are two courses in Political Science, or a declared major in another social science, or the consent of the instructor, or the history and social science requirements of the B.A. curriculum.

**601 Presidential Leadership and the Presidency U G 5**(655) *A. 5 cl.*

A study of presidential power and responsibility; the roles of the president; the policies of leadership; the presidency as an institution. *Hale.*



**610 Principles of Public Administration I U G 5**

(605) A. 5 cl.

Basic problems of public administration; ends and means; the formulation of policy; organization and management; working methods of control; coordination and responsibility.

**611 Principles of Public Administration II U G 5**

(606) W. 4 cl., 1 lab.

Prereq.: 3 courses in Pol. Sc.

An examination of the principles of public administration as applied to the rendering of services to the public by national, state, and local government.

**612† Public Personnel Administration U G 3**

(614) Sp. 3 cl.

Prereq.: 610.

The organization, purposes and activities of civil service agencies; and the conduct of public personnel policies and processes.

**615 Administration of Justice U G 5**

A. 5 cl.

A study of the nature, purposes, and limitations of law as administered through courts; the development, organization, and procedure of our judicial system; recent trends in legal thinking. *Aumann*.

**616 American Constitutional Law U G 5**

W. 5 cl.

A study of leading constitutional principles in the United States as interpreted by the courts. *Aumann*.

**626 British Government and Politics U G 5**

(625) A. 5 cl.

An analysis of the nature of politics and the conduct of government in contemporary Britain, including the making of foreign policy.

**627 Government of Western Europe U G 5**

(628) Su, A, W, Sp. 5 cl.

An examination of the political institutions and processes of France, West Germany, and the European integration movement. *Meckstroth and Milder*.

**630 The Soviet Union U G 5**

(636) A, W, Sp. 5 cl.

A general study of the Soviet Union; governmental and party institutions; ideology and methods; problems of communist dictatorship. *Nemzer and Stewart*.

**631 Survey of the Social Sciences in the USSR U G 5**

W. 3 cl.

Prereq.: 4th yr. standing or graduate standing or enrollment in Certificate Program for Translators.

An introduction to bibliography and methodology of the Social Sciences in the USSR.

**635 The Government and Politics of the Far East U G 5**

(650) Sp. 5 cl.

Government institutions of China, imperial, republican, and communist. Constitutionalism vs. militarism, occupation reforms, and contemporary politics in Japan; the governments of the nearby east Asian countries. *Richardson*.

**636 Southeast Asia U G 5**

(651) Sp. 5 cl.

Governments and politics of the Philippines, Indonesia, Indo-China, Malaya, Thailand, and Burma; contemporary problems of this region in relation to world politics. *Liddle*.

**650 International Law U G 5**

(612) Sp. 5 cl.

A study of the principles of international law. *Rainey and Azline*.

**651 International Organization and Administration U G 5**

(714) W, Sp. 5 cl.

An examination of the current system of international organization and its administrative aspects, with emphasis on the operations of the United Nations agencies. *Azline and Stegenga*.

**655 Soviet Foreign Policy U G 5**

(637) A. 5 cl.

Basic concepts about, and choices in, Soviet foreign policy; development and present patterns of Soviet relations with key nations; major problems in future relationships. *Nemzer and Stewart*.

**656 The United States in World Affairs U G 5**

(640) Su, A, W. 5 cl.

Domestic factors and agencies influencing American foreign policy; basic patterns of recent American relations, especially with the Soviet bloc, Western Europe, and the Middle East. *Rainey and Stegenga*.

**658 International Relations of the Far East U G 5**

(649) A. 5 cl.

The Far East in contemporary world politics; factors underlying the foreign policies of the nations concerned with this region. *Richardson*.

**668 Introduction to Jurisprudence U G 5**

(611) Sp. 5 cl.

A study of the concepts which legal systems develop and of the interests which law protects; ideas of various schools of juristic thought examined. *Aumann*.

**670 History of Political Theory: I, The Socratic Method U G 5**

(621) A. 5 cl.

The Socratic revolution in western political philosophy. Its consequences for human thought about man, the state, law, justice, property, power, happiness. *Kettler and Champlin*.

**671 History of Political Theory: II, From Machiavelli to Hegel U G 5**

(622) W. 5 cl.

A study of representative works by major modern thinkers—including Hobbes, Montesquieu, Rousseau, Kant and Hegel—seen in historical context. *Kettler and Champlin*.

**672 History of Political Theory: III, U G 5**  
**Contemporary Political Thought**

(623) Sp. 5 cl.

An examination of the more important contemporary ideas on the nature of the state; anarchism, syndicalism, communism, fascism, socialism, and democracy. *Spitz, Kettler, and Champlin.*

**676 Public Opinion and Political Processes U G 5**

(634) Su, A, Sp. 5 cl.

The formation, organization, and effects of public opinion and propaganda in the modern state; emphasis on the role of groups in political behavior. *Flinn, Hofstetter, and Robinson.*

**677 Legislation U G 3**

(633) A, Sp. 3 cl.

The processes of law-making in the United States, constitutions, statutes, executive ordinances, popular law-making, legislative drafting. *Ripley and Robinson.*

**693 Individual Studies in Political Science U G 1-5**

(701) Su, A, W, Sp.

*Prereq.: 4th yr. standing and 40 cr. hrs. in social sciences, including 15 cr. hrs. in Pol. Sc.*

A special topic is assigned to each student and results are tested by papers and special examinations.

**700 Basic Theories in the Study of American Government and Institutions U G 5**

A, W. 3 cl.

Canvass of institutional literature (Congress, Courts, the Presidency); examination of theoretical approaches (interest-group theory; theories of representation, decision-making models; theories of ideology). *Andrews, Flinn, Hale, Ripley, and Robinson.*

**Introduction to National Security**

(See Nat. Sec. Pol. S. 702.)

**719† Administrative Law U G 3**

(730) W. 1 2-hr. cl.

*Prereq.: 610, 611, 616 or equiv.*

Powers and processes of administrative agencies; judicial review of administrative action. *Hale.*

**725 Basic Theories in the Study of Comparative Government U G 5**

A, W, Sp. 3 cl.

Examination of such concepts and theories as structural-functional analysis; general systems theory; and socio-cultural systems as determinants of governmental structures. *Liddle, Meckstroth, and Richardson.*

**731 Problems in Soviet Politics U G 3**

(737) Sp. 3 cl.

*Prereq.: 630 or 655.*

An intensive examination of selected problems such as crises of succession, conflicts of pressure groups, Soviet policies in the United States, Sino-Soviet relations. *Nemzer and Stewart.*

**745 Basic Theories in the Study of International Relations U G 5**

A, W, Sp. 3 cl.

Examination of such basic concepts and theories as equilibrium models, balance of power, national interest, geopolitical configurations. *Burgess, Rainey, and Azline.*

**765 Analytic Political Theory U G 5**

A. 3 cl.

Analysis of basic concepts (power, elites, political change, etc.); examination of holistic political analyses (Marx, Pareto, Mannheim, MacIver, etc.). *Spitz, Kettler, and Champlin.*

**775 Basic Theories in the Study of Politics and Political Behavior U G 5**

Su, A, W. 3 cl.

Examination of basic concepts and theories, including political socialization, survey research, simulation and gaming, social conflict and quantitative indicators of political action. *Flinn, Hofstetter, and Robinson.*

**778 Comparative Political Parties U G 3**

(734) A, W. 3 cl.

*Prereq.: 575 and two courses in foreign governments or equiv.*

An examination of the nature and role of political parties in modern societies by the use of the comparative method. *Meckstroth and Milder.*

**779 The Policy Process U G 5**

(736) W, Sp. 3-5 cl.

*Prereq.: Senior standing and 15 cr. hrs. in Pol. Sc.*

The roles of elites, ideology, organized interests and issues in the making of government policy. Case studies in the policy process. *Hale and Robinson.*

**783 Honors Course U 3-5**

(705) A, W, Sp.

*Prereq.: 4th yr. standing and 40 cr. hrs. in social sciences, including 15 cr. hrs. in Pol. Sc., with a record of "A" in at least half of the Pol. Sc. courses and an average of "B" in the remainder. Permission of instructor and the Honors Committee of the College. At least two qtrs. are required of candidates for the degree of Bachelor of Arts with Distinction in Pol. Sc. Failure to receive a grade of "B" in this course is a disqualification for special honors.*

*Repeatable to a maximum of 15 cr. hrs.*

A special topic is assigned to each student and results are tested by the requirement of papers and special examinations.

**Research Principles and Techniques in National Security**

(See Nat. Sec. Pol. S. 785.)

**790 Scope and Methods of Political Science U G 5**

(731) A, Sp. 1 2-hr. cl., 1 1-hr. cl.

*Prereq.: 4th yr. standing and 15 cr. hrs. in Pol. Sc.*

The materials of political science; history of procedure in political science research; research technique, presentation of results of research. *Herson.*



**794 Contemporary Political Problems U G 3-5**

(798) *A, W, Sp. 2 3-hr. cl.*  
*Prereq.: Senior standing and 15 cr. hrs. in Pol. Sc.*  
*A. To be announced.*  
*W. To be announced.*  
*Sp. To be announced.*  
*Sp. To be announced.*

**GENERAL PREREQUISITES FOR COURSES  
 NUMBERED 800 AND 900**

A general foundation in undergraduate courses in history and the social sciences is assumed. Any of the 800 courses listed may be repeated provided that no student shall earn more than ten hours of credit in any single course.

**Seminar in National Security Research  
 (See Nat. Sec. Pol. S. 801).**

**801 American National Government G 3-5  
 and Institutions**

*W, Sp. 2 cl.*  
*Prereq.: 700 or permission of instructor.*  
 Seminar in national political institutions, Congress, Courts, the Presidency, and federalism. *Flinn, Hale, and Robinson.*

**807 Municipal Government G 3-5**

(809) *W, Sp. 1 2-hr. cl.*  
*Prereq.: 610, 611, 505 or equiv.*  
 Seminar in the municipal governments of the United States and Europe. *Andrews and Flinn.*

**813 Public Administration G 3-5**

(808) *W. 1 2-hr. cl.*  
*Prereq.: Any 2 of: 610, 611, 612, 520, (720) or equiv.*

**818 Public Law G 3-5**

(811) *Sp. 1 2-hr. cl.*  
*Prereq.: 615 and 616.*  
 Seminar in the field of public law, including special problems in the fields of constitutional law or judicial administration. *Aumann.*

**826 Comparative Government G 3-5**

(806) *A, W, Sp. 1 2-hr. cl.*  
*Prereq.: 2 Pol. Sc. courses in foreign governments at 600 level or above or equiv.*  
 Seminar in the governments of foreign countries. *Nemzer and Richardson.*

**846 International Relations G 3-5**

(810) *A, Sp. 1 2-hr. cl.*  
*Prereq.: 651 or 656 or 545 or equiv.*  
 Seminar in international relations. *Burgess.*

**866 Political Thought G 3-5**

(805) *W, Sp. 1 2-hr. cl.*  
*Prereq.: Previous course work in political thought; permission of instructor.*  
 Seminar in the history of political ideas and in the theoretical problems of contemporary politics for advanced students in related departments. *Spitz, Kettler, and Champlin.*

**876 Political Parties and Pressure Groups G 3-5**

(807) *A, W. 1 2-hr. cl.*  
*Prereq.: 2 courses in Pol. Sc. at 600 level or above, including 575.*  
 Seminar in American political parties and pressure groups. *Flinn, Hofstetter, and Robinson.*

**899 Interdepartmental Seminar G 1-5**

*Su, A, W, Sp.*  
*(See under Interdepartmental Seminars.)*

**999 Research in Political Science G Arr.**

(950) *Su, A, W, Sp.*  
 Research for thesis or dissertation purposes only.

## Portuguese

Office: 116 Derby Hall, 154 North Oval Drive  
**Professors Bulatkin (Chairman) and Griffin; Instructor Araujo.**

**101 Elementary Portuguese U 5**

(401) *A. 5 cl.*  
*May not be taken concur. with French 101-102, Ital. 101-102, Span. 101-102.*  
*Not open to students who are not eligible to take Engl. 101. Credit in 101 will be counted toward graduation only if followed by successful completion of 102, or if taken after successful completion of the fourth regular university course in another foreign language.*

Elements of Portuguese grammar, with oral and written exercises; attention to ear training and oral practice; and customs.

**102 Elementary Portuguese U 5**

(408) *W. 5 cl.*  
*Prereq.: 101.*  
*May not be taken concur. with French 101-102, Ital. 101-102, Span. 101-102.*

The elements of Portuguese grammar with abundant oral and written exercises; development of conversational skill; reading, vocabulary building.

**103 Intermediate Portuguese U 5**

(408) *Sp. 5 cl.*  
*Prereq.: 102.*

Continuation of Portuguese grammar; reading of short stories, plays and novels; increased attention to development of oral proficiency.

**104 Intermediate Portuguese U 5**

(404) *A. 5 cl.*  
*Prereq.: 103 or 112.*

Reading of Portuguese plays, short stories, and novels; emphasis on oral practice; non-fiction of cultural and historical significance.

**112 Intensive Portuguese U 5, 10, 15**

*Su. 15 cl. Enrollment limited to 20 students.*

*Full time of student and full fees required.*

*Prereq.: Permission of chairman.*

*Equiv. of 101, 102, and 103. Students with credit for 101 or the equiv. may not register for more than 10 cr. hrs. Students with credit for 101 and 102 or the equiv. may not register for more than 5 cr. hrs. Students with credit for 103 or the equiv. may not register for credit.*

Elementary and intermediate Portuguese; intensive drill in forms, syntax, vocabulary, and idiom; reading of short stories and plays in Portuguese.

**421 Introduction to Modern Lusio-Brazilian Literature U 5**

*W. 5 cl.*

*Prereq.: 104.*

Reading and discussion of important modern Portuguese and Brazilian literary works.

**694 Special Group Studies in Portuguese U G 1-5**

*Su, A, W, Sp.*

*Prereq.: Permission of instructor.*

*Repeatable to a maximum of 15 cr. hrs.*

**993 Individual Studies in Portuguese G 1-5**

*Su, A, W, Sp.*

*Prereq.: Permission of instructor.*

*Repeatable to a maximum of 15 cr. hrs.*

**994 Special Group Studies in Portuguese G 1-5**

*Su, A, W, Sp.*

*Prereq.: Permission of instructor.*

*Repeatable to a maximum of 15 cr. hrs.*

Investigation of minor problems in the various fields of Portuguese literature and language.

**GENERAL PREREQUISITES FOR COURSES  
NUMBERED 300 AND 400**

Unless otherwise indicated, the prerequisites for 300 and 400 courses are 90 cr. hrs. in collegiate courses, exclusive of ROTC and Phys. Ed.; or specified course(s) numbered 100-299.

**310+\* Avian Growth and Meat Production U 3**

*(501) Sp. 3 cl.*

*Prereq.: 200 and 10 cr. hrs. Chem., Zool. 101 or 10 cr. hrs. Biol.*

Physiology of growth and development in avian species; environmental factors influencing growth. *Jaap.*

**Principles of Animal Improvement**

*(See Dairy Sc. 420.)*

*(Offered in cooperation with the Departments of Animal Sc. and Poul. Sc.)*

**Principles of Animal Nutrition**

*(See Animal Sc. 430.)*

*(Offered in cooperation with the Departments of Dairy Sc. and Poul. Sc.)*

**GENERAL PREREQUISITES FOR COURSES  
NUMBERED 500**

Unless otherwise indicated, the prerequisites for 500 courses are 15 cr. hrs. in courses in the same discipline numbered 200 or higher, or 10 cr. hrs. in courses numbered 200 or higher in the same discipline, plus 10 cr. hrs. in courses numbered 200 or higher in specified allied disciplines; or baccalaureate degree.

**Poultry Marketing**

*(See Agr. Ec. 521.)*

*(Offered in cooperation with the Department of Poul. Sc.)*

**589 Poultry Science Experience U 5**

*(521) Su, A, W, Sp.*

*Prereq.: Junior standing or higher and permission of instructor.*

Practical experience, including completion of outlined program and written report, in an approved poultry establishment.

**593 Individual Studies U 2, 3 or 5**

*(701) Su, A, W, Sp.*

*Prereq.: 15 cr. hrs. 200-level courses or higher in Poul. Sc., Animal Sc., or Dairy Sc. and permission of instructor.*

**GENERAL PREREQUISITES FOR COURSES  
NUMBERED 600**

Unless otherwise indicated, the prerequisites for 600 courses are 15 cr. hrs. in courses in the same discipline numbered 300 or higher, or 10 cr. hrs. in courses numbered 300 or higher in the same discipline, plus 10 cr. hrs. in courses numbered 300 or higher in specified allied disciplines.

**611 Avian Reproduction and Egg Production U G 5**

*(503) Sp. 5 cl.*

*Prereq.: 5 cr. hrs. Microbiol., 10 cr. hrs. Chem. and 10 cr. hrs. Biol. Sc.*

*Not open to students with credit for 311.*

Physiology of avian reproduction and egg production as affected by circadian rhythms, social stress, neuroendocrine mechanisms, ambient environment and immunological competence. *Jaap.*

## Poultry Science

Office: Poultry Administration Building, 674 West Lane Avenue

Professors Cook (Chairman), Baker, Bohl, Brown (Associate Chairman, Wooster), Harvey Jaap, Marsh, Mountney, and Naber; Associate Professors Clayton, Malinovsky, and Touchburn; Assistant Professors Bacon, Chamberlin, and Nestor.

**Domestic Animals  
in the Service of Man**

*(See Animal Sc. 100)*

*(Offered in cooperation with the Departments of Dairy Sc. and Poultry Sc.)*

**GENERAL PREREQUISITES FOR COURSES  
NUMBERED 200**

Unless otherwise indicated, the prerequisites for 200 courses are 45 cr. hrs. in collegiate courses, exclusive of ROTC and Phys. Ed.; or specified course(s) numbered 100-199.

**200 Fundamentals of Poultry Science U 5**

*(401) A, W, Sp. 4 cl., 1 2-hr. lab., 1-day field trip.*

Fundamental principles of poultry production and marketing. *Marah.*



**Physiology of Reproduction and Growth**

(See Dairy Sc. 612.)

(Offered in cooperation with the Departments of Animal Sc. and Poul. Sc.)

**Laboratory in Reproductive Physiology and Artificial Insemination**

(See Dairy Sc. 613.)

(Offered in cooperation with the Departments of Animal Sc. and Poul. Sc.)

**Nutrition and Feeding of Monogastric Animals**

(See Animal Sc. 630.)

(Offered in cooperation with the Department of Poul. Sc.)

**640 Prevention and Control of Avian Diseases U G 5**

(613) W. 3 cl., 2 2-hr. lab.

Prereq.: 5 cr. hrs. Microbiol., 10 cr. hrs. Chem. and 10 cr. hrs. Biol. Sc.

The etiology, recognition, prevention and control of the important diseases of poultry and related birds. Marsh.

**650 Egg and Poultry Products Technology U G 5**

(618) Sp. 4 lec., 1 2-hr. lab.

Prereq.: 5 cr. hrs. Microbiol. and 10 cr. hrs. Chem.

The quality identification and maintenance; processing; physical, chemical, microbiological and nutrient properties and preservation of egg and poultry products. Mountney.

**695 Seminar U G 2**

(750) A, W, Sp.

**GENERAL PREREQUISITES FOR COURSES NUMBERED 700**

Unless otherwise indicated, the prerequisites for 700 courses are 15 cr. hrs. in courses in the same discipline numbered 400 or higher, plus additional specified course(s) numbered 600 or higher.

**Advanced Reproductive Physiology**

(See Dairy Sc. 710.)

(Offered in cooperation with the Departments of Animal Sc. and Poul. Sc.)

**Genetics of Animal Populations**

(See Dairy Sc. 720.)

(Offered in cooperation with the Departments of Animal Sc. and Poul. Sc.)

**GENERAL PREREQUISITES FOR COURSES NUMBERED 800 AND 900**

Unless otherwise indicated, the prerequisites for 800 and 900 courses are 30 cr. hrs. in courses in the same discipline, or 20 cr. hrs. in the same discipline, plus 25 cr. hrs. in specified allied disciplines.

**Current Topics in Animal Breeding**

(See Dairy Sc. 820.)

(Offered in cooperation with the Departments of Animal Sc. and Poul. Sc.)

**Advanced Studies in Nutrition**

(See Animal Sc. 830.)

(Offered in cooperation with the Departments of Dairy Sc. and Poul. Sc.)

**Current Topics in Animal Physiology**

(See Dairy Sc. 810.)

(Offered in cooperation with the Departments of Animal Sc. and Poul. Sc.)

**898 Interdepartmental Seminar in Nutrition and Food Technology G 1**

Sp.

(See under Interdepartmental Seminars.)

**993 Individual Studies G 2, 3 or 5**

(701) Su, A, W, Sp.

Prereq.: 15 cr. hrs. of 300-level courses or higher in Poul. Sc., Animal Sc. or Dairy Sc. and permission of instructor.

**999 Research G Arr.**

(950) Su, A, W, Sp.

Research for thesis or dissertation purposes only.

**Preventive Medicine**

Office: B-107 Starling Loving Hall, 410 West Tenth Avenue

Professors Ellingson (Chairman), Fancher, Keller, Lewis, Palchanis (Emeritus), Roberts, Rustagi, Schulte, Shaffer, and Shillito; Associate Professors Berry, Billings, Gresham, Schwichtenberg, Tomashefski, and von Gierke; Assistant Professors Carmichael, Catterson, Davis, Freedman, Goodloe, Gullett, Hyde, Lanese, Lentz, Lieban, McConkey, Odland, Peterson, Scobie, Sharp, Stuhling, Washam, Webb, Westra, Wick, and Yerg; Instructors Banks, Campbell, Chase, Greenlee, Harold, Lowery, McCall, Medina, Myers, Nick, Sandman, Stephan, Thomas, and Wain.

**585 Epidemiology U 3**

(595) A. 2 cl.

Prereq.: Microbiol. 210 or 509.

The principles of epidemiology in relation to human health and disease. Keller and Gresham.

**The Comprehensive Evaluation of the Patient.**

(See Med. 601, 602, 603.)

(Offered in cooperation with the Departments of Med., Ob. Gyn., Ophthal., Otol., Ped., Phys. Med., Psychiatry, Radiol., and Surg.)

[Emphasis on preventive relationship in individual and community health including environmental and occupational hazards and community resources for diagnosis, treatment and control of diseases.]

**618 Introduction to Public Health U 3**

W. 2 cl.

Prereq.: Nurs. 3rd yr. standing.

Consideration of community organization of health services on local, state, and national levels in relation to the health needs of contemporary society. Keller and Gresham.

**624 Quantitative Methods in Medicine P 2**  
*Sp. 2 cl.**Prereq.: Med. 1st yr. standing.*

Principles of medical statistics and laboratory exercises in analysis of papers in the medical literature, with reference to experimental design and numerical reasoning. *Keller and Staff.*

**735 Advanced Preventive Medicine P 2**  
*1 month, offered Oct., Feb.**Prereq.: Med. 4th yr. standing.*

Ecology of health and disease in the modern community; environmental health; public health methods; medical nutrition; and biometric application. *Keller and Staff.*

**753 Principles of Public Health Administration P 6***1 month, offered all months except June.**Prereq.: Med. 3rd yr. standing.*

Administration, organization, and function of Public Health agencies; principles of sanitation, food inspection, immunization, and school health. *Goodloe and Staff.*

**763 Medicolegal Problems in Industry P G 1***A. 1 1-hr. cl.**Prereq.: Graduate standing in Prev. Med. or permission of instructor.*

Legal relationships among employers, physicians, and employees; liability in case of injury; evaluation of disability; workmen's compensation; malpractice. *Ellingson and Staff.*

**764 Design of Biomedical Investigations P G 3***W. 2 2-hr. cl.**Prereq.: Med. 3rd yr. standing or graduate standing in Prev. Med.; or permission of instructor.*

Design of studies in biomedical area; formulation of hypotheses; sampling; planning observations and measurements; selection of statistical techniques; testing of hypotheses. *Keller and Billings.*

**793 Individual Studies in Preventive Medicine***1, 2, 3, or 4 months; offered P 6, 12, 18 all months except June.**Su, A, W, Sp.***G 2-5***Prereq.: Med. 3rd yr. standing, or graduate standing in Prev. Med., or permission of instructor. Repeatable to a maximum of 24 cr. hrs. for professional credit.***793.01 Aerospace Medicine***Ellingson.***793.02 Biometrics***Keller.***793.03 Clinical Environmental Medicine***Shillito.***793.04 Environmental Health***Roberts.***793.05 Epidemiology***Keller.***793.06 Nutrition***Lewis.***793.07 Occupational Medicine***Schulte.***793.08 Community Health***Keller.***799 Residency in Preventive Medicine P 18**  
*Su, A, W, Sp.**12 months full time, beginning July 1.**Prereq.: Appointment as Resident, University Hospital.**Repeatable to a maximum of 72 cr. hrs.*

Assignment to accredited area for training in Aerospace and Occupational Medicine.

**810 Principles of Aerospace Medicine G 2***Su. (2nd term). 1 2-hr. cl.**Prereq.: Permission of instructor.*

History and background of Aerospace Medicine; government regulatory agencies (FAA and CAB); civilian and military aerospace medical administration, research and practices; field trips to aerospace facilities. *Billings.*

**811 Principles of Occupational Medicine G 2***A. 1 2-hr. cl., field trips arr.**Prereq.: Permission of instructor.*

Intramural and extramural relationships of the physician in industry; physical facilities, personnel and equipment of industrial medical departments; departmental budgeting; employee examinations, health maintenance programs; safety programs. *Schulte.*

**812\* Public Health Organization G 2**  
*Sp. 1 2-hr. cl.**Prereq.: Permission of instructor.*

History and development of Public Health agencies; legal bases of public health law; administrative structure of official and voluntary agencies and their relationships to the complex of health and medical services in the community. *Keller.*

**820 Introduction to Applied Toxicology G 3***A. 3 1-hr. cl.**Prereq.: Permission of instructor.*

Basic consideration of the impact of environmental toxins upon the organism; chemical structure of harmful substances in relation to toxicity; intermediary metabolism and sub-cellular responses. *Shillito and Schulte.*

**821 Applied Toxicology in Occupational Medicine G 3***W. 3 1-hr. cl.**Prereq.: 820 or equiv., or permission of instructor.*

Consideration of the dusts; noxious gases; toxic aliphatic and aromatic hydrocarbons; and related compounds. *Schulte.*

**822 Applied Toxicology in Aerospace Medicine G 3***Sp. 3 1-hr. cl.**Prereq.: 820 or equiv., or permission of instructor.*

Consideration of toxic agents which may be encountered in flight operation including pesticides, fuels and propellants, economic poisons and the metals. *Shillito.*

**830 World Nutrition G 3**  
*W. 4 cl.**Prereq.: Physiol. Chem. 611-612 or equiv., or permission of instructor.*

A multidisciplinary approach to the study of nutrition in developing countries; emphasis on food supply, nutritional status, infant and child malnutrition and nutrition survey methods.



**840†\* Clinical Aerospace and Occupational Medicine G 3**

W, Sp. 2 1½-hr. cl.  
Prereq.: Permission of instructor.

Medical qualification for employment or for flying, from viewpoints of major clinical specialties; general aerospace and industrial medical problems; aerospace and ground safety programs. *Ellingson and Staff.*

**845 Medical Aspects of Human Engineering G 3**

A, W, Sp. 2 1½-hr. cl.  
Prereq.: 820, Physiol. 840, or permission of instructor.

Consideration of interfaces between medicine, physiology, psychology, and engineering in the design of complex systems operated by man; organization and administration of human factors groups. *Billings and Staff.*

**850 Seminar in Preventive Medicine G 1-3 (755)**

Su, A, W, Sp.  
Prereq.: Permission of instructor.

Repeatable to a maximum of 8 cr. hrs.  
850.01 Selected Topics in Occupational or Aerospace Medicine  
*Ellingson and Staff.*  
850.02 Selected Topics in Advanced Nutrition  
*Lewis and Medical Staff.*

**851 Epidemiologic Methods G 3 (750)**

Su. (2nd term). 8 1-hr. cl.  
Prereq.: Permission of instructor.

Principles of epidemiology with special emphasis on methods employed in current epidemiologic studies of chronic diseases. *Keller and Staff.*

**856 Nutrition in Systemic Disease G 3 (760)**

W.  
Prereq.: Med. senior standing or graduate standing in Nutrition or Med. Diet.

The physio-pathological background of systemic disease and the rationale of specific diets in their prevention and treatment. *Lewis and Medical Staff.*

**858 Community Nutrition G 3 (761)**

A, W, Sp.  
Prereq.: Med. senior standing or graduate standing in Nutrition.

Methods of discovering problems in public health nutrition and practical application of nutrition information for improvement of nutritional status at various age levels. *Scobie.*

**860\* Epidemiology and Public Health G 3 (850)**

W. 2 2-hr. conf.  
Prereq.: 851 or equiv., or permission of instructor.

Principles of public health, vital statistics, epidemiology, environmental sanitation, and communicable disease control on local, national and global bases. *Keller and Staff.*

**861 Industrial Hygiene G 3 (851)**

W. 2 1½-hr. conf.  
Prereq.: Permission of instructor.

Engineering appraisal of environmental health hazards, sampling techniques, instrumentation and analytical methods; the industrial hygiene survey. *Carmichael.*

**862 Environmental Control G 3 (852)**

Sp. Conf. and field exercises.  
Prereq.: Permission of instructor.

Principles of substitution, enclosure, isolation of hazardous operations; local exhaust ventilations; general ventilation-air conditioning; noise control, radiant energy; ionizing radiation; personal protective equipment; medical supervision of persons exposed to conditions of special hazards. *Roberts and Staff.*

**898 Interdepartmental Seminar in Nutrition and Food Technology G 1**

Sp.  
(See Interdepartmental Seminars, Book 18.)

**899 Interdepartmental Seminar in Industrial Engineering G 1-5**

Sp.  
Prereq.: Permission of instructor.

The Departments of Industrial Engineering and Preventive Medicine conduct a Seminar annually with industrial psychologists in an area of common interest; topic to be announced.

**999 Research in Preventive Medicine G Arr.**

(950) Su, A, W, Sp.  
Research for thesis purposes only.

## Psychiatry

Office: 071 Upham Hall, 473 West 12th Avenue

Professors Gregory (Chairman), Coddington, Corson, Fischer, G. Harding, Sr., Liss, Marks, Palmer, Patterson, S. Rettig, and Siegel; Associate Professors Goldman, Green, G. Harding, Jr., Kaelbling, Kangas, W. Knopp, Lohrman, McGough, Michael, Missildine, Parker, Pine, and Ristine; Assistant Professors Besch, Borelli, Brandes, Brush, Burk, Butcher, Carlton, Corlis, Gardner, Gove, Gwynne, Haas, C. Harding, H. Harding, King, E. Knopp, Krauss, Learmonth, Lindner, McCluer, New, J. Rettig, Smith e Incas, Stephenson, Taylor, Todd, Vecozols, Weaver, and Whieldon; Instructors Griffin, Guda, and Van Sickle.

### Comprehensive Evaluation of the Patient

(See Med. 601, 602, 603.)  
[Offered in cooperation with the Departments of Med., Ob. Gyn., Ophthal., Otol., Ped., Phys. Med., Prev. Med., Radiol., and Surg.]  
[Experiences with the emotionally disturbed in various clinical areas emphasizing interview techniques; dynamic and descriptive approaches to concepts of emotional growth, development, and pathology.]

**707 Case Study P G 1 (807)**

Su. 1 cl.  
Prereq.: Permission of chairman and instructor.

Introduction to methods of psychiatric case study (interview, history, examination and diagnosis); and to general principles of clinical psychopathology (descriptive, dynamic, developmental and etiologic).

- 708 Psychopathology I** P G 1  
*A. 1 cl.*  
*Prereq.: Permission of chairman.*  
 A sequence course in Autumn, Winter, and Spring Quarters reviewing the clinical etiological and psychodynamic aspects of the common psychiatric disorders.
- 709 Psychopathology II** P G 1  
*W. 1 cl.*  
*Prereq.: 708.*  
 Continuation of 708.
- 710 Psychopathology III** P G 1  
*Sp. 1 cl.*  
*Prereq.: 708, 71.*  
 Continuation of 709.
- 711 Introduction to Group Psychotherapy** P G 1  
*Sp. 1 cl.*  
*Prereq.: Permission of instructor.*  
 Rationale for the use of group psychotherapy and fundamental techniques needed in starting and conducting a psychotherapeutic group.
- 712 Advanced Psychotherapy and Family Therapy I** P G 2  
*A. 1 2-hr. cl.*  
*Prereq.: 740, 741 or equiv.*  
 Family therapy, communication systems, family rules and structure; analysis of therapist-patient relationships.
- 713 Advanced Psychotherapy and Family Therapy II** P G 2  
*W. 1 2-hr. cl.*  
*Prereq.: 712 or equiv.*  
 Continuation of 712.
- 714 Behavioral Science I** P G 1  
*A. 1 cl.*  
*Prereq.: Permission of chairman.*  
 Intensive coverage of scientific research procedures in the behavioral sciences, including the nature of the hypothesis, experimental designs, techniques of controls, and some basic parametric and non-parametric statistics.
- 715 Behavioral Science II** P G 1  
*W. 1 cl.*  
*Prereq.: 714.*  
 Continuation of 714.
- 716 Behavioral Science III** P G 1  
*Sp. 1 cl.*  
*Prereq.: 715.*  
 Covers problems and methods of personality measurements with emphasis on objective approaches to personality assessment.
- 717 Neuropathological Basis of Mental Disorders** P G 2  
*Sp. 2 cl.*  
*Prereq.: Permission of chairman.*  
 Emphasis on new trends in neuropathology as illustrated by results of recent research; considered as a re-evaluation of established and hypothetical etiological mechanism of diseases affecting the nervous system.
- 718 Psychiatric Theory I** P G 1  
*A. 1 cl.*  
*Prereq.: Permission of chairman.*  
 Covers psychiatric theories of personality, nature and etiology of psychopathology and psychotherapy plus relevant historical material; emphasizes Freudian psychoanalytic theory and its precursors.
- 719 Psychiatric Theory II** P G 1  
*W. 1 cl.*  
*Prereq.: 718 and permission of chairman.*  
 Continuation of 718.
- 720 Psychiatric Theory III** P G 1  
*Sp. 1 cl.*  
*Prereq.: 719 and permission of chairman.*  
 Covers psychiatric theories of personality, nature and etiology of psychopathology and psychotherapy plus relevant historical material; emphasizes other major theorists neither classical, psychoanalytic nor Neo-Freudian.
- 721 Neuroendocrine Bases of Behavior** P G 1  
*A. 1 cl.*  
*Prereq.: Permission of chairman.*  
 Normal and pathologic operation of selected biologic control systems examined in terms of cybernetics, relating anatomy, physiology, and pharmacology to overt behavior.
- 722 Forensic Psychiatry** P G 1  
*Sp. 1 cl.*  
*Prereq.: M.D. degree, and permission of chairman.*  
 Psychiatric testimony in criminal and civil legal procedures; determination of competency and indications for involuntary commitment; legal responsibilities of the psychiatrist.
- 723 Community Psychiatry** P G 1  
*Su. 1 cl.*  
*Prereq.: Permission of chairman.*  
 A review of the recent growth, development and expanding programs in the field of community psychiatry.
- 724 Psychiatric Applications of Psychological Tests** P G 1-2  
*Su. (2nd term). 2 cl., (2 lab. hrs. optional).*  
*Prereq.: Permission of instructor.*  
 Psychological testing procedures and their use in clinical psychiatry (intelligence testing, personality evaluation and neuro-psychological assessment).
- 737 Clinical Psychiatry** P 6 or 12  
*2 months, offered July, Sept., Nov., Jan., Mar., and May.*  
*Prereq.: Med. 3rd or 4th yr. standing.*  
*Must repeat to 12 cr. hrs.*  
 Psychopathology and dynamisms of psychiatric syndromes; diagnosis, treatment, and interview techniques in ward work, case studies, conferences and seminars; correlations of medical, psychological, and social factors.
- 740 Basic Psychotherapy I** P G 1  
*A. 1 cl.*  
*Prereq.: Permission of chairman.*  
 A study of basic concepts of psychotherapy, theory and technique, with review of the development and structure of the personality.



- 741 Basic Psychotherapy II** P G 1  
W. 1 cl.  
Prereq.: 740.

Continuation of 740; a study of basic concepts of psychotherapy, theory and technique, with review of the development and structure of the personality.

- 742 Child Psychiatry** P G 1  
Su. 1 cl.  
Prereq.: Permission of instructor.

The application of the theory of disturbed family attitude homeostasis to the behavior problems with children; a discussion of case histories, interview techniques and treatment approaches to the problems of children.

- 745 History of Psychiatry I** P G 1  
A. 1 cl.  
Prereq.: Permission of chairman.

The development of psychiatric concepts and practices through the ages; study of biographical sources and significant writings.

- 746 History of Psychiatry II** P G 1  
W. 1 cl.  
Prereq.: 745 and permission of chairman.

Continuation of 745.

- 747 Interview Techniques** P G 1  
Su. 1 cl.  
Prereq.: Permission of chairman.

A review of the principles and techniques of interviewing the psychiatric patient, with demonstrations and practice interviews supplemented by tapes.

- 749 Psychiatric Drug and Somatic Therapies** P G 1  
Su. 1 cl.  
Prereq.: Permission of chairman.

A systemic discussion of the relevant basic information related to the clinical applications, indication, contra-indications and precautions in the application of the respective therapies.

- 750 Psychiatric Aspects of Mental Retardation** P G 1-2  
Su. 1 cl., (2 lab. hrs. optional).  
Prereq.: Permission of chairman.

Theoretical and clinical aspects of mental retardation as related to psychiatry.

- 751 Anatomical Substrates of Behavior** P G 1  
A. 1 cl.  
Prereq.: Anat. 643 or 683 or equiv.

A review of topography and discussions of the nervous system as a substrate of higher nervous functions and seat of mental disturbances.

- 793 Individual Studies in Biological Psychiatry** G 1-2  
1, 2 or 3 months; offered all months. P 6, 12, 18  
Su, A, W, Sp.

Prereq.: Med. 3rd or 4th yr. standing and permission of chairman.

- Biological Psychiatry
- Experimental Psychology
- Learning and Motivation

- Neuroendocrine and Other Correlates of Conditioned Reflexes and Hypnosis
- Neurochemistry and Neuropharmacology
- Neuroendocrinology
- Neuropathology
- Neurophysiology

- 794 Individual Studies in Clinical Psychiatry** G 1-2  
1, 2 or 3 months; offered all months. P 6, 12, 18  
Su, A, W, Sp.

Prereq.: Med. 3rd or 4th yr. standing and permission of chairman.

- Advanced Psychotherapy
- Experimental Psychopathology
- Mental Health Administration
- Psychiatric Test Procedures
- Psychosomatic Medicine
- Social Psychiatry
- Social Psychology
- Clinical Psychiatry

- 795 Group Studies in Psychiatry** P 6  
1 month.

Prereq.: Med. 3rd or 4th yr. standing and permission of department chairman.

- Cerebrovisceral Physiology and Pavlovian Conditioned Reflexes. Nov., Jan., Feb., Mar.; Corson.
- Chemical Pharmacological Models and Mechanisms in Biological Psychiatry. Feb.; Fischer.
- Pathology of Mental and Neurological Disease. Nov.; Liss.
- Psychological Aspects of Psychiatry. Jan.; Besch.
- Biological Communication and Control Systems. Mar.; Goldman and Lindner.
- Sociological and Social Psychological Aspects of Psychiatry. Jan.; S. Rettig.

- 799 Residency in Psychiatry** P 18  
Su, A, W, Sp.

12 months full time, beginning July 1.

Prereq.: Appointment as Resident, University Hospital.

Repeatable to a maximum of 216 cr. hrs.

Rotation through inpatient and outpatient services in the diagnosis and treatment of psychiatric disorders of adults and children; rounds, conferences and individual supervision.

- 850 Seminars in Psychiatry** G 1-2  
(800) Su, A, W, Sp. 1 cl.

Prereq.: Permission of chairman and instructor.

Repeatable to a maximum of 6 cr. hrs.

- Clinical Psychiatry
- Group Therapy
- Psychotherapy
- Psychiatric Literature
- Child Psychiatry

- 999 Psychiatry Research** G 5-15  
(950) Su, A, W, Sp.

Prereq.: M.D., and residency in Psychiatry.

Research for thesis purposes only.

## Psychology

Office: 321 Arps Hall, 1945 North High Street

**Professors** Wherry (Chairman), Briggs, Burnett, Cassidy, Cook, Fletcher, Horrocks, Huelsman, MacMinn, Marks, Meyer, Pepinsky, Robinson, Siegel, Smith, Stewart, Thompson, Wenar, Wickens, and Wolf; **Associate Professors** Brock, Campbell, Clark, Erickson, Greenwald, Johnson, Johnston, Jones, Kangas, Kaswan, Osipow, Rie, Schonemann, Stafford, and Straub; **Adjunct Assistant Professor** Lamb; **Assistant Professors** Beier, Ernst, Gardner, Goldrich, Ketchum, Libby, Mirels, Nolan, Ostrom, Owen, Ruma, Spitzner, Walsh, and Weaver; **Lecturers** Albrecht, Besch, and Grether; **Instructors** Rodgers, Russell, and Roberts.

### 100 General Psychology U 5

(401) Su, A, W, Sp. 5 cl.

Introductory psychology, a prerequisite to advanced courses; the application of the scientific method to behavior; topics include: Learning, Motivation, Perception, Personality, Physiological basis of behavior.

### 101 General Psychology U 5

(402) A, W, Sp. 5 cl.

*Prereq.: 100.*

Continuation of 100. Further emphasis on the development of a scientific attitude toward personal psychological problems in the fields of learning, thinking, intelligence, and personality.

### 110† Mental Hygiene U 3

(408) 3 cl.

*Prereq.: 100.*

*Not open to seniors.*

Survey of the principles of mental hygiene; social and emotional adjustment, and personality in light of the principles of mental hygiene; adjustment problems of the college student.

### 120 Psychology of Personal Effectiveness U 3

(411) Su, A, W, Sp. 2 cl., 1 2-hr. lab.

A survey of theories and practices designed to improve higher level skills in reading, perception, learning, and adjustments.

### 130 Advising Freshman Students U 1-4

(581) A, W, Sp.

*Prereq.: Permission of instructor.*

*Repeatable to a maximum of 4 cr. hrs.*

Mature student assistants of freshmen will have actual experience in advising younger students concerning their scholastic and social orientation and personal development. *Rodgers, Roberts, Russell, and Staff.*

### 210 Educational Psychology for Medical Personnel U 5

(404) Sp. 5 cl.

*Prereq.: 100 and Zool. 404.*

*Not open to students with credit for 280.*

Human capacities, abilities, interests, individual differences and total development through the life span; aspects of learning and personality of interest to medical personnel.

### 220 Quantitative Methods in Psychology U 5

(508) A, W, Sp. 5 cl.

*Prereq.: 100 or 300 and Math. 116 or equiv.*

Methods of measurement in psychology, procedures used in expressing behavior in terms of quantity, the significance of quantity in the study of human traits.

### 230 Introduction to Educational Psychology U 5

(407) Su, A, W, Sp. 5 cl.

*Prereq.: 100.*

*Not open to students with credit for 210.*

Facts and principles of human development and learning are applied to the problems of education. Scientific evidence in the solution of educational problems is stressed.

### 300 Introductory Psychology U 5

(403) A, W, Sp. 5 cl.

*Prereq.: 10 cr. hrs. of science.*

*Not open to students with credit for 100.*

An introduction to psychology for students with science background; topics covered similar to 100.

### 310 General Psychology: Sensation and Perception U 3

(504) Su, A, Sp. 3 cl.

*Prereq. or concur.: 220.*

Subject matter and methods of psychology as a life science, with special reference to problems of sensory intensity, the sensory discrimination functions, and perceptual functions. *Owen.*

### 311 General Psychology Motivation and Action U 3

(505) A, W. 3 cl.

*Prereq. or concur.: 220.*

A behavioristic presentation of experimental work on learning and motivation. *Goldrich and Spitzner.*

### 312 General Psychology: Learning and Thinking U 3

(506) W, Sp. 3 cl.

*Prereq.: 311.*

The principles developed in 311 are extended to complex human behavior, especially verbal. *Johnson.*

### 320 Social Psychology U 3

(521) A, W, Sp. 3 cl.

*Prereq.: 220.*

The influence of group processes, organizational variables, and culture upon the social modification of basic drives, attitudes and language. *Ostrom and Greenwald.*

### 330 Psychology of Abnormal Behavior U 3

(541) Su, A, W, Sp. 3 cl.

*Prereq.: 10 cr. hrs. in Psychol.*

A consideration of the symptomatologies, etiologies and therapies of the major neuroses and psychoses with special emphasis on psychoanalytic theories and methods. *Nolan.*



**340 Genetic Psychology U 3**

(507) A. 3 cl.

*Prereq.: 9 cr. hrs. in Psychol.*

The facts of human development with some phylogenetic perspective. Topics cover physical and mental development, innate tendencies, mental states and personality development. *Clark.*

**500 Experimental Psychology U G 2**

(601) A, W, Sp. 1 cl., 2 lab. hrs. arr.

*Prereq.: 310 and 312 or permission of instructor.*

The experiments are selected both for general and cultural values and for preparation for technical research in experimental psychology.

**501 Physiological Psychology U G 3**

(605) W. 3 cl.

*Prereq.: 101 or 300.*

Some physiological correlates of psychological phenomena; the properties of integrated organ systems, with emphasis upon the characteristics of their elements; consideration of psychosomatic abnormalities. *Goldrich.*

**502 Advanced Physiological Psychology U G 3**

(606) Sp. 3 cl.

*Prereq.: 501.*

Further physiological correlates of psychological phenomena. Sensory and motor processes will be special topics. *Goldrich.*

**503† Psychology of Vision U G 3**

(687) 3 cl.

*Prereq.: 310 or permission of instructor.*

Phenomena, methods, and theory in all areas of current visual research; provides a foundation in sensory psychology as exemplified in vision. *Owen.*

**504 Psychology of Music U G 3**

(667) W. 3 cl.

*Prereq.: Permission of instructor.*

Psychological factors in musical learning, memorization, rhythm, harmony, form, tone color, interpretation, diction, and music talent. *Poland.*

**505 Contemporary Viewpoints in Psychology U G 3**

(646) W. 3 cl.

*Prereq.: 16 cr. hrs. in Psychol.*

A consideration of the development of modern scientific psychology from its roots in the school of the nineteenth century to its contemporary status.

**510 Elementary Statistical Methods U G 4**

(608) Su, A, W, Sp. 2 cl., 4 lab. hrs.

*Prereq.: Math. 117 or permission of instructor.*

Introduction to statistics and application to psychological and educational research; rationale, computation, and interpretation. *Schönemann, Fotheringham, Nolan, and Erickson.*

**511 Psychological Testing U G 3**

(613) Su, A, Sp. 2 cl., 1 lab. hr.

*Prereq.: 10 cr. hrs. in Psychol.*

An overview of theoretical and practical aspects of the assessment and prediction of human behavior. Topics include achievement, intelligence, personality, attitudes, interests and interpersonal relations. *Stafford.*

**512 Test and Measurement in Speech U G 3**

(704) Sp. 3 cl.

*Prereq.: 510.*

Procedures in developing, using, and evaluating tests in speech education, radio and television, theatre, speech and hearing disorders, and general communication. *Fotheringham.*

**520 Experimental Social Psychology U G 4**

(677) A, W, Sp. 2 cl., 4 lab. hrs.

*Prereq.: 320, 510 and permission of instructor.*

*Repeatable to a maximum of 12 cr. hrs.*

Typical experiments in such social psychological areas as attitude change, group processes, and group influences upon the individual. *Ostrom.*

**530 Psychology of Personality U G 3**

(678) Su, A, W, Sp. 3 cl.

*Prereq.: 10 cr. hrs. in Psychol.*

A theoretical approach to the problems of personality development measurement and functioning. Emphasis is given to a critical evaluation of the major theories of personality. *Mirels.*

**531 Clinical Psychology U G 3 or 5**

(695) Su, A, W, Sp. 3 cl., 2 optional lab.

*Prereq.: 15 cr. hrs. in Psychol.*

Discussion of the field of clinical psychology; its methods, its problems and its use in guidance, education, hospitals, industry, and other areas. *Kaswan and Mirels.*

**540 Counseling Psychology: An Introduction U G 3**

(659) Su, A, W. 3 cl.

*Prereq.: 10 cr. hrs. in Psychol.*

A course designed for students who are interested in counseling and personnel work; discussion of counseling psychology, counseling, and testing. *Walsh and Osipow.*

**541 Educational and Vocational Appraisal U G 3**

(640) Su, W. 3 cl.

*Prereq.: 101 or 130.*

Theory and techniques of appraisal of individual characteristics as related to the formulation of future educational and vocational plans. *Walsh.*

**542 Vocational Psychology U G 3**

(689) Su, Sp. 3 cl.

*Prereq.: 101 or 130.*

Survey of the psychological aspects of work and their implication for vocational development; the use of labor force and occupational information in vocational choice. *Walsh.*

**550 Psychology of Childhood U G 3**

(663) Su, A, W, Sp. 3 cl.

*Prereq.: 10 cr. hrs. in Psychol.*

Psychological development from birth to age 12; influence of school, family, and other out-of-school activities; provision for the child's psychological needs. *Libby and Wenar.*

**551 Adolescence U G 3**

(610) Su, A, W, Sp. 3 cl.

Prereq.: 10 cr. hrs. in Psychol.

A study of the outstanding characteristics of the adolescent, the educational and social problems arising at this period, and means for dealing with the problem. Horrocks and Ruma.

**552 Studying the Individual Child U G 2-3**

(666) Sp. 1 cl., lab. hrs.

Prereq.: A course in developmental psychol. and permission of instructor.

Repeatable in the following qtr. to a maximum of 5 cr. hrs.

The student is assigned a normal child for individual study; observation of the child's behavior at home, at school, in varied social situations (using tests where appropriate); coordination of information obtained from records and interviews and a weekly report. Wenar.

**560 Educational Psychology U G 3**

(676) Su, A. 3 cl.

Prereq.: 10 cr. hrs. in Psychol.

A course in advanced educational psychology, giving a critical appraisal of the implications for education of modern psychological findings. Libby.

**570 Exceptional Children: General Survey U G 3**

(609) Su, A, W. 3 cl.

Prereq.: 10 cr. hrs. in Psychol.

Exceptional children and their problems including intellectual deviant, the partially sighted and hard of hearing children with speech problems, other physically handicapped and emotionally disturbed. Cassidy and Staff.

**599 Honors Course U G 3**

(700) A, W, Sp. 3 cl.

Prereq.: Permission of departmental Undergraduate Program Committee.

Repeatable to a maximum of 9 cr. hrs.

A program of readings, conferences, and reports selected to provide maximum individual development and preparation for graduate study in the field. Owen, Johnson, and Johnston.

**600 Psychology of Learning U G 4**

(626) Su, A. 4 cl.

Prereq.: 101 or equiv.

The principles that underlie the discovery, fixation, and retention of new modes of human behavior. Emphasis is placed on theoretical formulation of the necessary conditions of learning and forgetting. Wickens.

**601 Comparative Psychology U G 3**

(655) A. 2 cl., 1 2-hr. lab.

Prereq.: 20 cr. hrs. in Psychol. or permission of instructor.

Principles of animal behavior, with emphasis upon the contributions of zoology and B. F. Skinner. Spitzner.

**610 Introduction to Quantitative Learning Models U G 3**

(629) A. 3 cl.

Prereq.: 312 and 510 or equiv.

A critical review of model building in psychology with special emphasis upon mathematical techniques; detailed examination of two or three current mathematical or statistical models. Erickson.

**611 Educational Testing U G 3**

(680) W. 3 cl.

Prereq.: 15 cr. hrs. in Psychol.

A service course for those majoring in Elementary and Secondary Education, Guidance, School Psychology, and School Administration. Stress is on use of measurements in school. Stafford.

**612 Laboratory and Psychological and Educational Measurement U G 3**

(713) A. 1 cl., 4 lab. hrs.

Prereq.: 511 or 611 or equiv.

Repeatable to a maximum of 6 cr. hrs.

612.01† Administration and Scoring Procedure for Group Tests

612.02 Construction of Achievement Tests A.

Cook.

612.03† Construction of Aptitude and Ability Tests

612.04† Construction of Personality Tests

**620 Engineering Psychology U G 3**

(623) A, Sp. 3 cl.

Prereq.: 310 and 312 or permission of instructor.

Application of methods and techniques from experimental psychology to problems of equipment design for human use; the design, operation and management of man-machine systems. Johnston.

**621 Industrial Psychology U G 3**

(637) A. 3 cl.

Prereq.: 10 cr. hrs. in Psychol.

Industrial training; effective work methods; equipment design; environmental factors; fatigue, monotony and accidents; morale. Ketchum.

**622 Psychology of Industrial Personnel U G 3**

(639) Sp. 3 cl.

Prereq.: 10 cr. hrs. in Psychol.

The application of psychology to problems of personnel; selection and placement of employees by tests of intelligence and special ability; trade tests, job analysis, and rating scales. Ketchum.

**623 Motivation in Industry U G 3**

(644) W. 3 cl.

Prereq.: 10 cr. hrs. in Psychol.

A survey of present theory and research concerning motivation, morale and job satisfaction in industry, and their relation to human performance.

**624 Psychology of Advertising U G 3**

(635) A. 3 cl.

Prereq.: 10 cr. hrs. in Psychol.

The psychological principles involved in effective advertising, notably attention, memory and action, with the contributory factors of association, feeling, instinct, suggestion, and reasoning. Ketchum.

**630 Psychology of Public Attitudes U G 3**

(679) W. 3 cl.

Prereq.: 320 and 220 or equiv.

Attitude organization and change; study of the determinants of attitude. Ostrom.



**631 Differential Psychology U G 3**

W. 3 cl.

Prereq.: 220 or 510.

Critical consideration of the traits wherein individuals and groups differ; factual data as to differences between men and women, races and ethnic groups, social classes, etc. *Libby*.

**632 Prejudice and Personality U G 3**

(648) A. 3 cl.

Prereq.: 220.

Social psychological theories of group conflict; personality dynamics in prejudice; approaches to the reduction of intergroup hostility.

**633 The Psychology of the Audience U G 2**

Sp. 2 cl.

Prereq.: 630 and 10 cr. hrs. in Speech or permission of instructor.

Descriptive and experimental studies of audience behavior; dimensions and patterns of audience stimulation; measurement of effects of communication; communication analysis. Listening. *Knower*.

**640 Mental Hygiene for Professional Workers U G 2**

(690) Su, A, Sp. 3 cl.

Prereq.: 101 or 230.

The determinants of maladjustment and principles used in the prevention of maladjustment for teachers, personnel workers, social workers, psychologists, occupational therapists, and other professional groups. *Fletcher and Stewart*.

**650 Psychological Study of Individuals and Groups U G 3**

(674) W. 3 cl.

Prereq.: Permission of instructor.

Basic concepts and techniques of personnel work in the student living center. *Straub*.

**651 Psychology of Reading U G 3**

(683) Su, A, Sp. 3 cl.

Prereq.: 10 cr. hrs. in Psychol.

Psychological analysis of the reading process; the relationship of this to teaching and remedial methods; discussion of remedial reading techniques. *Huelsman and Robinson*.

**661† Psychology of Aging U G 3**

(670) 3 cl.

Prereq.: 10 cr. hrs. in Psychol.

A survey of research and theory related to psychological changes through adulthood and old age. *Clark*.

**670 The Psychology of Speech U G 3**

(632) W. 3 cl.

Prereq.: 10 cr. hrs. in Psychol. and 10 cr. hrs. in Speech.

Descriptive and experimental studies of speech processes and activities; learning, personal and social adjustments, vocal and visible symbolism, language and semantics, thinking; speech behavior patterns. *Knower*.

**671 Principles and Economy of Learning U G 3**

(628) Su, A. 3 cl.

Prereq.: Graduate standing or 10 cr. hrs. in Psychol.

The psychological principles involved in the practical control of learning activities, especially the more complex forms as seen in school and in industrial training. *Libby*.

**680 The Intellectual Deviate U G 3**

(611) W. 3 cl.

Prereq.: 570 or permission of instructor.

Theory and concepts of mental retardation, slow learner, intellectually gifted; causation, diagnosis, and treatment of social, personal, and educational problems of children so labeled. *Jones*.

**681 Educational Disability U G 3**

(636) Su, A. 3 cl.

Prereq.: 570 and 651 or permission of instructor.

An overview of theory and practice including causes, diagnostic procedures, remediation, and instructional materials. *Huelsman*.

**682 Principles of Treating the Problem Child U G 3**

(671) Su, W. 3 cl.

Prereq.: 15 cr. hrs. in Psychol.

Methods used in dealing with behavior and personality problems of children.

**683 Psycho-Educational Diagnostic Teaching U G 3**

(615E) Su, A, W, Sp. 1 cl., 4 lab. hrs.

Prereq.: 651 and permission of instructor.

Repeatable to a maximum of 9 cr. hrs.

Using test materials in the diagnosis of special disabilities in school work; practice with remedial procedures. *Huelsman*.

**684 Delinquent Children U G 3**

(622) W. 3 cl.

Prereq.: 15 cr. hrs. in Psychol.

The meaning and significance of delinquency in a cultural context; its psychological basis from a theoretical and empirical framework; present modes of detection and treatment.

**693 Individual Studies U G 1-15**

(650) Su, A, W, Sp.

Prereq.: 16 cr. hrs. in Psychol. and permission of instructor.

Individual reading or research projects by special agreement between instructor and student.

**Introduction to National Security**

(See Nat. Sec. Pol. S. 702)

**Research Principles and Techniques in National Security**

(See Nat. Sec. Pol. S. 785)

**701 Learning-Disabled Children U G 3**

Su, W. 3 cl.

Prereq.: 570 or permission of instructor.

Critical study of learning-disabled children with emphasis on neurological-perceptual factors, in contrast with emotional, cultural and educational factors in learning disability. *Huelsman*.

- 788 Laboratory in Industrial Psychology** U G 3  
 1 cl., 4 lab. hrs.  
*Prereq.:* 510 or equiv. and permission of instructor.  
*Repeatable in different sections to a maximum of 12 cr. hrs.*  
 788.01 Attitude and Morale Scales  
 Sp.  
*Ostrom.*  
 788.02 Industrial Testing  
 A.  
*Ketchum.*  
 788.03† Job and System Analysis and Evaluation  
 788.04 Merit Rating  
 W.  
*Wherry.*
- 794 Special Topics in Psychology** U G 3  
 (703) A, W, Sp. 3 cl.  
*Prereq.:* 15 cr. hrs. in Psychol. at 500 level or above and permission of instructor.  
 The topics will vary from quarter to quarter and will be announced at least one month in advance.
- 800 Advanced Experimental Laboratory** G 3-15  
 (831) Su, A, W, Sp.  
*Prereq.:* Permission of instructor.  
*Repeatable to a maximum of 15 cr. hrs.*  
 Advanced training in the experimental and quantitative methods in the several areas of general experimental psychology and comparative psychology. *Exper.*
- Seminar in National Security Research**  
 (See Nat. Sec. Pol. S. 801)
- 801 Advanced Theoretical Psychology** G 4  
 (811) Sp. 4 cl.  
 A description and evaluation of the major advanced psychological behavior theories. *Wickens.*
- 802 Advanced Psychology of Motivation** G 3  
 (841) Sp. 3 cl.  
*Prereq.:* 20 cr. hrs. in Psychol. including 311 or 600 or permission of instructor.  
 An evaluation of the experimental and theoretical material on: physiological drives; development and maintenance of secondary motives; perception and motivation, conflict. *Spitzner.*
- 803 Perception** G 3  
 (845) Su, Sp. 3 cl.  
*Prereq.:* 310 and 501 or permission of instructor.  
 Basic problems and phenomena of perception and their theoretical interpretations. *Owen.*
- 804† Advanced Comparative Psychology** G 3  
 (844) 3 cl.  
*Prereq.:* 601.  
 Contemporary literature in comparative psychology. *Meyer.*
- 805† Psychophysiology of the Special Senses** G 3  
 (843) 3 cl.  
*Prereq.:* 502 or 503 or permission of instructor.  
 A survey of the basic physiology of the senses and the peripheral nervous system. Emphasis is upon receptor mechanisms and neural coding processes.
- 806 Neuropsychology I** G 3  
 A. 3 cl.  
 An introduction to the principles governing neural integrative mechanisms; morphology of nervous systems of the vertebrates; transmission in individual neurons; properties of junctions in integrative networks; elementary laws or reflex action. *Meyer.*
- 807 Neuropsychology II** G 3  
 W. 3 cl.  
*Prereq.:* 806.  
 Functional differentiation of the nervous systems of vertebrates; properties of principle division of the brain; organizations of the forebrain; mechanisms of sleep and waking rhythm; mechanisms of perception. *Meyer.*
- 808 Neuropsychology III** G 3  
 Sp. 3 cl.  
*Prereq.:* 807.  
 Neural mechanisms of motivation and behavioral plasticity; control of major cyclical phenomena, including hunger, thirst and reproduction; reactions to aperiodic and continued stresses; mechanisms of the learning process. *Meyer.*
- 809 History and Systems of Psychology** G 3  
 (853) A. 3 cl.  
*Prereq.:* 16 cr. hrs. in Psychol.  
 Development of psychology from the philosophical antecedents to its present status as a science and a profession. Assignments in original sources as far as possible. *Meyer.*
- 810 Methodological Foundations of Experimental Psychology** G 5  
 (825) W. 5 cl.  
 Problems of definition of psychological concepts, formulation and testing of hypotheses, theory, construction and formulation of empirical generalization with reference to design of psychological experiments. *Wickens.*
- 811 Seminar in Experimental Psychology** G 2  
 (802) Su, A, W, Sp. 2 cl.  
*Prereq.:* Permission of instructor.  
*Exper.*
- 812 Contemporary Psychological Literature** G 1  
 (805) Sp. 1 cl.  
*Briggs.*
- 816 Advanced Engineering Psychology** G 3  
 W. 3 cl.  
*Prereq.:* 620 or permission of instructor.  
 Problems of sensory communication, vigilance, training, environmental settings for man-machine systems in an automated society. *Briggs.*



**817 Seminar in Engineering Psychology** G 3  
*A. W. Sp. 3 cl.*  
*Prereq.: Permission of instructor.*  
*Briggs and Johnston.*

**819 Seminars in Industrial Psychology** G 2  
*(807) 2 cl.*  
*Prereq.: Permission of instructor.*  
 a. Consumer Behavior and Marketing Research  
*Sp.*  
*Ketchum.*  
 b.† Criterion Development  
 c. Leadership and Organizational Values  
*A.*  
 d. Motivation and Morale  
*W.*  
 e.† Selection and Placement Theory  
 f. Training Methods and Devices  
*W.*  
*Johnston.*  
 g. Current Practices and Trends  
*Sp.*

**822 Psychological Assessment** G 3  
*A. 3 cl.*  
*Prereq.: 510.*

A critical survey and evaluation of concepts and techniques of assessment of intelligence, special aptitudes, and personality. *Stafford.*

**823 Theory of Test Construction** G 3  
*(855) W. 3 cl.*  
*Prereq.: 511 or 611 or equiv.*

Review of major approaches including traditional mental test theory, assessment theory, and decision theory in relation to constructing and use of various types of tests. *Stafford.*

**824 Seminar in Psychological Measurement** G 2  
*(804) 2 cl.*  
*Prereq.: Permission of instructor.*  
 824.01 The Measurement of Cognitive Functions  
*Sp.*  
 824.02 Models for Psychophysics  
*Sp.*  
*Erickson.*  
 824.03† Models for Psychological Scaling  
 824.04† Models for Psychological Testing  
 824.05 Models for Interpersonal Analysis  
*W.*  
*Ostrom.*

**827 Inferential Statistics in Psychology** G 4  
*A. 4 cl.*  
*Prereq.: 510 or equiv.*

A coverage of statistical inference and prediction in psychological research including parametric and non-parametric methods and concepts of measurement and probability. *Briggs.*

**828 Correlational Analysis** G 4  
*(816) Sp. 4 cl.*  
*Prereq.: 810 or permission of instructor.*  
 Techniques and rationale of using quantitative and qualitative data for prediction; test and battery analysis and validation. *Wherry.*

**829 Quantitative Foundations of Psychological Statistics** G 4  
*(814) W. 4 cl.*  
*Prereq.: 510 or equiv.*  
 Principles and techniques for deriving statistical equations; their modification to handle special cases; clarifying assumptions and their application. *Erickson.*

**830 Machine Programming for Psychological Research** G 3  
*(819) Su. 3 cl.*  
*Prereq.: 828 and Math. 241 and permission of instructor.*  
 An introduction to mnemonic symbolic language and loop theory. Applications to the more common psychological statistical problems will be stressed. *Wherry.*

**831 Seminars in Psychological Statistics** G 2  
*(815) 2 cl.*  
*Prereq.: Permission of instructor.*  
 a. Analysis of Variance  
*A.*  
 b. Experimental Design  
*W.*  
*Briggs.*  
 c. Factor Analysis  
*A.*  
*Wherry.*  
 d. Mathematical Models and Theory  
*W.*  
*Erickson.*  
 e. Non-Parametric Statistics  
*Su.*  
*Wherry.*

f. Advanced Experimental Design  
*Sp.*  
 g. Advanced Multivariate Analysis  
*Sp.*  
*Schönemann.*  
 h.† Computer Simulation Research  
 i.† Current Practices and Trends

**834 Psychology of Infancy** G 3  
*W. 3 cl.*  
*Prereq.: 887 or permission of instructor.*  
*Not open to students with credit for 660.*

Psychological development during the first four years of life with particular reference to neonatal period and research methodology in studies involving infants. *Wenar.*

**835 Child Development** G 3  
*A. 3 cl.*  
*Prereq.: 837 or permission of instructor.*

Major developmental aspects of childhood; review of theory, methodology, research studies, and historical and contemporary writing about children; consideration of interdisciplinary approaches. *Thompson.*

### 836 Adolescent Development G 3

Sp. 3 cl.

Prereq.: 837 or permission of instructor.

Major developmental aspects of adolescence; review of theory, methodology, research studies, and historical and contemporary writing about adolescents; consideration of interdisciplinary approaches. *Horrocks*.

### 837 Nature and Direction of Human Development G 3

(840) Su, A. 3 cl.

Critical consideration of human development, selected theories and methods of investigation including units of measurement. Emergence of mind considered through the phylogenetic and ontogenetic sequence. *Horrocks*.

### 838 Interaction of Developmental Learning Function G 2

(854) W. 2 cl.

Prereq.: 550 or 835 and 600 or 671 or equiv.

Relation of empirical data on imprinting, sensory and motor deprivation, and environmental extensions upon theoretical construction designed to integrate such data. *Thompson*.

### 839† Comparative Child Rearing Practices G 3

3 cl.

Prereq.: 835, 836 or equiv. and Sociol. 509 and permission of instructor.

Comparative survey of familial and community child-rearing practices in modern and primitive cultures; psychological and theoretical implications of various practices; review of research methodology.

### 840 Practicum in Developmental Psychology G 3-9

(838) A. 1 cl., lab. hrs.

Prereq.: 2nd yr. graduate standing in Psychol., 837, 838 and permission of instructor.

Repeatable to a maximum of 9 cr. hrs.

Observation of children in a representative variety of clinical settings with particular reference to developmental phenomena of growth and behavior; application of research, diagnostic and intervention methodology. *Wenar*.

### 841 Symposium in Developmental Literature G 1

A, W, Sp. 1 cl.

Prereq.: Permission of instructor.

Critical review of current research literature in developmental psychology. *Horrocks and Ruma*.

### 842 Seminar in Developmental Psychology G 3

(851) 2 cl.

Prereq.: Permission of instructor.

a.† Current Theoretical Issues.

b. Development of Dimensions of Cognitive Functions.

Sp.

Thompson.

c.† Development of Social Attitudes and Values.

d. Cultural Influences on Human Development.

W.

*Horrocks*.

e. Psychological Variables in Growth.  
Sp.

Rie.

f.† Development of Creative Behavior.

g. Deviate Behavior in Childhood and Adolescence.

A.

Wenar.

h.† Phylogenesis.

i.† Aging and Senescence.

j.† Sequential Phenomena of Growth and Degeneration.

k.† Developmental Aspects of Language.

### 843 Theories of Human Development G 3

W. 3 cl.

Prereq.: 837.

Comparative presentation of significant major historical and modern developmental theories with specific evaluation of their relevance in the formulation of a comprehensive psychological theory. *Horrocks*.

### 844 Psychopathology of Childhood G 2

W. 2 cl.

Prereq.: 837 and permission of instructor.

A study of psychopathological conditions of childhood, such as autism, schizophrenia, neurosis, acting out, and behavior problems from a developmental point of view. *Wenar*.

### 846 Advanced Educational Psychology G 3

Sp. 3 cl.

Prereq.: Permission of instructor.

Critical consideration of research and theory in developmental, learning and measurement as relevant to education; special attention to historical positions, assumptions, and current literature. *Clark*.

### 847 Psychological Problems in Higher Education G 2

(810) A. 2 cl.

Designed to give graduate students preparing for college teaching positions contact with current educational research regarding the psychological problems they will encounter. *Burnett*.

### 848 Seminar in the College Teaching of Educational Psychology G 2

A, W, Sp. 2 cl.

Prereq.: Permission of instructor.

The objectives of educational psychology in teacher education; a presentation of practical problems in organization, development, and evaluation of undergraduate courses in educational psychology. *Clark*.

### 849 Seminar in Educational Psychology G 2

(803) A, W, Sp. 2 cl.

Prereq.: Permission of instructor.

*Clark and Libby*.

### 853 Psychology of the Exceptional Child and Adult G 3

Sp. 3 cl.

Review and evaluation of theoretical and research literature concerning exceptional children and adults. *Cassidy*.



**854 Psychological and Child Study Services in the Public Schools G 3**

(824) Su, Sp. 3 cl.

Prereq.: Permission of instructor.

Professional problems in school psychology. Smith.

**855 Psycho-Educational Diagnosis G 3**

1 cl., 4 lab. hrs.

Prereq.: Permission of instructor. Sections .01 and .02 are prereq. for Sections .03, .04, and .05.

Theory, development, and use of tests, scales, and other diagnostic procedures; practice in interviewing and writing and use of psychological reports.

**855.01 Binet Type Tests**

Su, A.

Smith.

**855.02 Wechsler Intelligence Scales**

Su, W.

Smith.

**855.03 Special Tests of Sensory, Motor and Language Handicaps**

Su, Sp.

Smith.

**855.04† Development Diagnosis**

Smith.

**855.05 Advanced Practicum in Psychological Testing**

Su, A, Sp.

Smith.

**856 Seminar in School Psychology G 1-3**

A, W, Sp. 1 to 3 cl.

Prereq.: Permission of instructor.

Two sections, A and B, may be taken in any one quarter. Smith and Huelman.

**857 Psychological Problems in Mental Retardation G 4**

A. 4 cl.

Prereq.: 570 and permission of instructor.

Advanced study of psychological aspects of mental retardation; topics include theories of mental retardation, studies of sensory and perceptual processes, cognitive functioning, and language and communication. Jones.

**858 Psychological Problems in Physical Disability G 4**

Sp. 4 cl.

Prereq.: 570 and permission of instructor.

Advanced study of cognitive and non-cognitive functioning in those with motor and sensory disabilities, and the chronically ill and neurologically impaired. Jones.

**859 Seminars in the Psychology of Exceptional Children and Adults G 2**

A, W, Sp. 2 cl.

Prereq.: Permission of instructor.

Repeatable to a maximum of 6 cr. hrs.

Advanced topics in research strategies and methodology; specialized topics on the growing edge of the psychology of exceptional children and adults. Jones.

**860 Theories of Personality G 3**

(818) W. 3 cl.

Prereq.: Advanced work in personality and social Psychol. and permission of instructor.

A critical consideration of the theories of personality structure and origin. Mirels.

**861 Clinical Psychology**

Prereq.: Permission of instructor.

Introduction to the theory and use of clinical methods in psychology including interviewing, observation of free behavior, case documentation, professional problems, and individual testing. Designed for first-year graduate students. Weaver.

**861.01 Lecture G 3**

A. 3 cl.

**861.02 Practicum G 2**

A. 4 lab. hrs.

**862 Psychopathology**

Prereq.: Permission of instructor.

Personality disturbances and their clinical manifestations. Weaver.

**862.01 Lecture G 3**

W. 3 cl.

**862.02 Practicum G 2**

W. 4 lab. hrs.

**863 Psychodynamics**

Prereq.: Permission of instructor.

Survey of personality theories, particularly those related to methods of psychological treatment. Laboratory involves cases in childrens' clinics, mental hospital or school system. Kaswan.

**863.01 Lecture G 3**

Sp. 3 cl.

**863.02 Practicum G 2**

Sp. 4 lab. hrs.

**864 Psychodiagnostics**

Prereq.: Permission of instructor.

Theory and use of psychodiagnostic tests; laboratory includes administration, scoring, and interpretation of projective tests. Weaver.

**864.01 Lecture G 3**

Sp. 3 cl.

**864.02 Practicum G 2**

Sp. 4 lab. hrs.

**865 The Psychology of Group Therapy G 2**

(718) A. 2 cl.

Prereq.: 682 or permission of instructor.

Primarily for students who may use psychological group methods in professional works; general principles of group therapy and specific methods with children and adults described and evaluated. Corlis.

**866 Advanced Psychological Clinic**

(865) Prereq.: Permission of instructor.

Theory and practice of psychotherapy; offered in connection with community services of Psychology Clinic. Two practicums: Type A, advisory services, and Type B, treatment services. Kaswan.

**866.01 Lecture G 2**

A, W. 2 cl.

**866.02 Practicum G 3**

A, W, Sp. 6 lab. hrs.

Repeatable to a maximum of 9 cr. hrs., with no more than 6 hrs. of one type.

**867 Seminar in Clinical Abnormal Psychology G 2 or 4**

(806) A, W, Sp. 2 cl.

Prereq.: Permission of instructor.

Two sections may be offered in any one qtr.

**870 Advanced Social Psychology G 3**

(812) A. 3 cl.

*Prereq.: 25 cr. hrs. in Psychol. including 320 and 302 or 600 or equiv.*

Problems of learning and perception relative to the social environment, the influence of culture in the development of individual behavior patterns, and related topics. *Brock.*

**871 Counseling and Therapy As Social Institutions G 3**

(834) A. 3 cl.

A review of diverse counseling and therapeutic practice as belief and ritual, with emphasis upon their manifest and latent functions in American Society. *Pepinsky.*

**872 Social Psychology Laboratory G 3-12**

A, W, Sp. 2 cl., 2 lab. hrs. for each additional cr. hr.

*Prereq.: Permission of instructor.**Repeatable to a maximum of 12 cr. hrs.*

Advanced training in methods and data collection in the areas of social psychology, laboratory, and field experience. *Brock.*

**873 Seminar in Social Psychology G 3**

(813) 3 cl.

*Prereq.: Permission of instructor.*

- a. Contemporary Attitude Theory and Research.  
Sp.

*Brock.*

- b.† Social Structure and Personality

- c. Systematic Theory in Social Psychology  
Sp.

- d. The Psychology of Social Movements  
W.

- e. Current Research Trends  
A.

*Greenwald.*

- f. Group Processes  
W.

*Brock.***874 Cognitive Processes G 3**

Sp. 3 cl.

*Prereq.: 20 cr. hrs. in Psychol. or permission of instructor.*

Topics include: influential psychological and mechanical models of mind; special cognitive processes (language, creativity, cognitive styles, concept formation); distortions of cognitive process (by drugs, motivation, etc.). *Greenwald.*

**880 Laboratory in the Psychology of Campus Groups G 3**

(782) Sp. 1 cl., 6 lab. hrs.

*Prereq.: 650 and 382.*

Experience in the advisement of campus organizations and in services to special student groups is paralleled with continuous discussion of psychological principles and appropriate technique. *Stewart.*

**881 Administrative Aspects of Student Personnel Work G 2**

(827) W, Sp. 2 cl.

*Prereq.: Permission of instructor.*

Advanced graduate students have the opportunity of relating principles and concepts of student personnel administration to operating procedures on the campus. *Stewart.*

**882 Psychology of Counseling G 3**

(821) Su, A, W, Sp. 3 cl.

*Prereq.: 13 cr. hrs. in Psychol.*

Assumptions and facts fundamental to counseling; factors in the interview situation; nature of counseling techniques; resources in counseling; relation of counseling to other personnel procedures. *Robinson.*

**883 Counseling Diagnostics**(852) *Prereq.: 510, 511, 382 and (for laboratory) permission of instructor.*

Theory and application of interview data, observed behavior, test results, and biographical information as a basis for diagnostics in counseling and evaluation. *Fletcher.*

883.01 Lecture G 3  
W. 3 cl.

883.02 Practicum G 2  
W. 4 lab. hrs.

**884 Psychology of Career Development G 3**

(823) Sp. 3 cl.

*Prereq.: 332.*

A survey and critical analysis of literature and research regarding effects of sequence of work activity, vocational exploration, and career development. *Osipow.*

**885 Beginning Practicum in Counseling G 3**

(832) A, W, Sp. 1 cl., 4 lab. hrs.

*Prereq.: 383 and permission of instructor.**Repeatable to a maximum of 6 cr. hrs.*

Supervised practice in assisting college students in their adjustment to college; emphasis on diagnosis and treatment; special help given to interviewing procedures. *Stewart and Osipow.*

**886 Advanced Practicum in Counseling G 2-3**

(833) A, W, Sp. 1 cl., 2 lab. hrs. for each hr. of additional cr.

*Prereq.: 385 and permission of instructor.**Repeatable to a maximum of 9 cr. hrs.*

Supervised practice in (a) assisting college students and adults with problems of personality adjustments or (b) supervising techniques through observation and discussion of work with other counselors. *Fletcher.*

**887 Seminar in Counseling Psychology G 2**

(822) Su, A, W, Sp. 2 cl.

*Prereq.: Permission of instructor.**Campbell, Osipow, and Walsh.***899† Interdepartmental Seminar G 1-5**

(See under Interdepartmental Seminars.)



**980 Supervised Field Experience G 1-15**  
**in Psychology**

(880) Su, A, W, Sp.

*Prereq.: Psychol. 2nd yr. standing and approval of local staff of area in which student is specializing. (Supervised by member of local staff and some member of the outside agency approved by the Department of Psychology.)*

Supervised experience, either research or operational, in any agency doing professional psychological work such as a school system, a psychological clinic, an industrial personnel department, or a counseling center.

**999 Research in Psychology G Arr.**

(950) Su, A, W, Sp.

Research for thesis or dissertation purposes only.

## Radiology

Office: N-208 University Hospital, 410 West Tenth Avenue

**Professors** Nelson (Chairman), Batley, Christoforidis, Freimanis, Molnar, and Myers; **Associate Professor** Dunbar; **Assistant Professors** Fievares, Harris, Riccobono, Schloss, Sopp, and Stockum.

**The Comprehensive Evaluation of the Patient**

(See Med. 601, 602, 603.)

[Offered in cooperation with the Departments of Med., Ob. Gyn., Ophthal., Otol., Ped., Phys. Med., Prev. Med., Psychiatry, and Surg.]

[Discussion of radiological methods contributing to the diagnosis and therapy of various abnormal physiological and pathological entities presented.]

**740 Radiological Diagnosis P 6, 12, 18**  
**in Clinical Medicine**

1, 2, 3, or 4 months; offered all months except June, July, Aug.

*Prereq.: Med. 3rd or 4th yr. standing.*

Repeatable to a maximum of 24 cr. hrs.

Participation in diagnostic radiology; special seminars and clinics; optional research project. Nelson.

**750 Radiology, Advanced P 1**

1 month, offered Oct., Feb.

*Prereq.: Med. 4th yr. standing.*

Clinical clerkship in the Department of Radiology, University Hospital; instruction in radiation therapy and film reading techniques.

**793 Individual Studies P 6, 12, 18**

1, 2, 3, or 4 months; offered all months except June, July, Aug.

*Prereq.: Med. 3rd or 4th yr. standing.*

Repeatable to a maximum of 24 cr. hrs.

Graduated participation in diagnostic and therapeutic radiology; optional research project after 6 credit hours in 793.

**799 Residency in Radiology P 18**

Su, A, W, Sp.

12 months full time, beginning any month.

*Prereq.: Appointment as Resident, University Hospital.*

Repeatable to a maximum of 216 cr. hrs.

General diagnostic radiology, nuclear medicine, and radiation therapy, special diagnostic and therapeutic procedures, consultations, and conferences.

**999 Research in Radiology G Arr.**

(950) Su, A, W, Sp.

Research for thesis purpose only.

## Romance Linguistics

Office: 116 Derby Hall, 154 North Oval Drive

**Professors** Bulatkin (Chairman) and Griffin.

**693 Individual Studies U G 1-5**  
**in Romance Linguistics**

(701) A, W, Sp.

*Prereq.: Permission of instructor.*

Griffin.

**794 Special Group Studies U G 1-5**  
**in Romance Linguistics**

A, W, Sp.

*Prereq.: Permission of instructor.*

Repeatable to a maximum of 15 cr. hrs.

Investigation of minor problems in the various fields of Romance Linguistics.

**811 Romance Linguistics I G 5**

(847) A. 5 cl.

*Prereq.: Permission of instructor.*

Not open to students with credit for (847).

A general survey of the development of the Romance languages and an introduction to the basic materials and techniques of investigation. Griffin.

**812 Romance Linguistics II G 5**

(848) W. 5 cl.

*Prereq.: 847 or permission of instructor.*

Not open to students with credit for (848).

Topics and problems, both synchronic and diachronic; special attention to the minor Romance languages. Griffin.

**831† Seminar in Romance Linguistics G 3-5**

(822) Sp.

*Prereq.: Permission of instructor.*

Griffin.

## Rural Sociology

Office: 103 Agricultural Administration Building, 2120 Fyffe Road

Professors Boyne (Chairman), Bailey, R. L. Baker, R. H. Baker, Barr, Baumer, Cravens, Dambach, Dougan, Hadley, Mangus, McCormick, Milner, Mitchell, Oyler, Sharp, Shaudys, Sherman, Sitterley, Smith, Stout, Tompkin, Wayt, and Williams; Associate Professors Adams, Bottum, Ezzell, Himes, Ingraham, Jacobson, Jones, Marion, McDonald, Phillips, Reeser, Steele, Walker, and Walsh; Assistant Professors Bowen, Darrow, Hahn, Harter, J. E. Moore, Rask, Thomas, Vandemark, and Whisler; Instructors Miskell, Pugh, Tucker, and Watkins.

### 105 Introduction to Rural Sociology U 5 (405) A, W, Sp. 5 cl.

Not open to students with credit for Soc. 101 or 201.

Principles of society, major social institutions and social change; emphasizes social changes in rural life, rural organizations, population and family living. Mangus, Mitchell, and Phillips.

#### GENERAL PREREQUISITES FOR COURSES NUMBERED 300 AND 400

Unless otherwise indicated, the prerequisites for 300 and 400 courses are 90 cr. hrs. in collegiate courses, exclusive of ROTC and Phys. Ed.; or specified course(s) numbered 100-399.

### 310 The Rural Family U 5 (630) A. 5 cl.

Prereq.: 105 or Soc. 101 or 201.

Structure and functions of rural families in changing societies. Mangus.

### 316 Rural Social Organization U 5 (609) A. 4 cl., 1 2-hr. lab.

Prereq.: 105 or Soc. 101 or 201.

Covers elements of social organization, functions of formal and informal social systems, process of making decisions in communities; analysis of actual rural community is made. Mitchell.

### 317 Rural Leadership U 3 (506) Sp. 1 2-hr. cl., 1 2-hr. lab.

Prereq.: 105 or Soc. 101 or 201.

Basic principles and practices in the development of effective leadership in organization and community action programs; power structures and levels of leadership are examined. Mitchell and Phillips.

### 421 Diffusion of Information on Agricultural Technology U 3 (640) Sp. 3 cl.

Prereq.: 105 or Soc. 101 or 201.

The process by which new ideas diffuse to the farmer and homemaker; emphasis on the role of group influences, professional agricultural workers, and adoption leaders. Mitchell and Phillips.

### 422 Rural Sociology of Developing Societies U 3 (680) W. 3 cl.

Prereq.: 105 or Soc. 101 or 201.

Sociological principles applied to analysis of present social systems and institutions of developing nations for students preparing for foreign service with rural societies. Mangus.

#### GENERAL PREREQUISITES FOR COURSES NUMBERED 500

Unless otherwise indicated, the prerequisites for 500 courses are 15 cr. hrs. in courses in the same discipline numbered 200 or higher, or 10 cr. hrs. in courses numbered 200 or higher in the same discipline, plus 10 cr. hrs. in courses numbered 200 or higher in specified allied disciplines; or baccalaureate degree.

### 593 Individual Studies U G 2-5 (701) Su, A, W, Sp.

Prereq.: Permission of instructor.

#### GENERAL PREREQUISITES FOR COURSES NUMBERED 600

Unless otherwise indicated, the prerequisites for 600 courses are 15 cr. hrs. in courses in the same discipline numbered 300 or higher, or 10 cr. hrs. in courses numbered 300 or higher in the same discipline, plus 10 cr. hrs. in courses numbered 300 or higher in specified allied disciplines.

### 600 Advanced Rural Sociology U G 5 (608) W. 5 cl.

Prereq.: 15 cr. hrs. in Rur. Soc. and/or Soc. at the 300 level or higher.

An advanced course on rural society dealing with fundamentals in rural social institutions and organizations, rural social change and nature of rural social systems. Mangus, Mitchell, and Phillips.

### 693 Individual Studies U G 2-5 (701) Su, A, W, Sp.

Prereq.: Permission of instructor.

#### GENERAL PREREQUISITES FOR COURSES NUMBERED 800 AND 900

Unless otherwise indicated, the prerequisites for 800 and 900 courses are 30 cr. hrs. in courses in the same discipline, or 20 cr. hrs. in the same discipline, plus 25 cr. hrs. in specified allied disciplines.

### 996 Seminars in Rural Sociology G 2-4 (801) A, W, Sp.

Prereq.: 30 cr. hrs. in Rur. Soc. and/or Soc.

Each seminar topic repeatable to a maximum of 8 cr. hrs.

Topics will be announced by the department prior to registration time each qtr.

The fields of study are as follows:

- 996.01 Population Problems
- 996.02 Rural Family
- 996.03 Rural Health
- 996.04 Rural Leadership
- 996.05 Rural Community and Institutions
- 996.06 Community Development
- 996.07 Diffusion of Technology
- 996.08 Research Methods in Rural Sociology
- 996.09 Social Organization and Administrative Problems
- 996.10 Sociology of Foreign Areas
- 996.11 Rural Church
- 996.12 Farmer Organizations

### 999 Research G Arr. (950) Su, A, W, Sp.

Research for thesis and dissertation purposes only.



## Russian

Office: 316 University Hall, 216 North Oval Drive

Professors Twarog (Chairman) and Silbajoris; Associate Professors Kresky, Krzyzanowski, and Oulanoff; Assistant Professors Chalsma, Naylor, Robinson, and Smith.

### 101 Elementary Russian U 5

(401) Su, A, W, Sp. 5 cl.

Credit in 101 will be counted toward graduation only if followed by successful completion of 102, or if taken after successful completion of the fourth regular university course in another foreign language.

### 102 Elementary Russian U 5

(402) Su, A, W, Sp. 5 cl.

Prereq.: 101.

### 103 Intermediate Russian U 5

(403) A, W, Sp. 5 cl.

Prereq.: 102.

Reading of prose and poetry; oral and written practice; grammar review.

### 104 Intermediate Russian U 5

(404) Su, A, W, Sp. 5 cl.

Prereq.: 103 or 112.

107, 108, and 109 may be taken in lieu of 104.

Reading of prose and poetry; oral and written practice; vocabulary building.

### 107 Scientific Russian Reading U 2

(407) A. 2 el.

Prereq.: 103 or 112.

107, 108, and 109 may be taken in lieu of 104.

Concentration on material of general interest to all sciences.

### 108 Scientific Russian Reading U 2

(408) W. 2 cl.

Prereq.: 107 or permission of instructor.

107, 108, and 109 may be taken in lieu of 104.

Reading of unedited texts from current Soviet publications.

### 109 Scientific Russian Reading U 2

(409) Sp. 2 cl.

Prereq.: 108 or permission of instructor.

107, 108, and 109 may be taken in lieu of 104.

Specialized reading and translation of a major contribution in one of the sciences.

### 112 Intensive Russian U 5, 10, 15

(415) Su, A. 15 el.

Full time of student and full fees required.

Prereq.: Permission of chairman.

Students with credit for 101 or the equiv. may not register for more than 10 cr. hrs. Students with credit for 101 and 102 or the equiv. may not register for more than 5 cr. hrs. Students with credit for 108 or the equiv. may not register for credit.

Registration limited. Early enrollment advised.

Elementary and intermediate Russian for students desiring comprehensive knowledge of Russian in the shortest possible time. *Kresky.*

### 130 Elementary-Intermediate Russian For Selected Students U 5

(430) W. 5 cl.

Prereq.: Grade "A" in 101.

*Kresky.*

### 131 Elementary-Intermediate Russian For Selected Students U 5

(431) Sp. 5 cl.

Prereq.: 130.

Successful completion of the sequence 101-130-131 fulfills language requirements and provides eligibility for 400 courses.

*Kresky.*

### 405 Russian Conversation U 3

(505) W, Sp. 3 cl.

Prereq.: 104 or permission of instructor.

Drill in everyday patterns of conversation.

### 406 Russian Composition U 2

(506) W, Sp. 2 cl.

Prereq.: 104 or permission of instructor.

Practice in simple writing.

### 407 Intermediate Conversation U 3

(507) Sp. 3 cl.

Prereq.: 405 or permission of instructor.

Drills in intonation; perfection of pronunciation; oral reports; expansion of spoken vocabulary.

### 408 Review Grammar and Composition U 2

(508) A, Sp. 2 cl.

Prereq.: 406 or permission of instructor.

Review of Russian grammar, composition on assigned topics, practice in translation.

### 412 Intermediate Intensive Russian U 5 or 10

(516) Su, W. 10 cl.

Prereq.: 103, 112, or permission of chairman.

The equiv. of 104, 405, 408. Students with credit for 104 may with permission of chairman, register for 5 cr. hrs. instead of 10 cr. hrs. The course must be taken in its entirety.

*Kresky.*

### 420 Russian Literature in English Translation: From Pushkin to Turgenev U 5

(520) A. 4 cl.

Not open to students with credit for (613) or (620).

An introduction to the Russian novel, drama, and poetry. Major contributions of Pushkin, Lermontov, Gogol, Ostrovsky, Goncharov, and Turgenev.

### 421 Russian Literature in English Translation: From Dostoevsky to Blok U 5

(521) W. 4 cl.

Not open to students with credit for (614) or (620).

Reading and analysis of *Crime and Punishment*, *War and Peace*, *The Golovlyov Family*, as well as short stories and plays by Chekhov, Gorky, Bunin, Bely, and Andreyev.

- 475 Introduction to Russian Literature, U 3**  
**The Early Classics: Romanticism,**  
**The Natural School, Early Realism**  
 (575) A. 3 cl.  
*Prereq.: 104 or permission of instructor.*  
*Conducted in Russian.*  
 Readings from representative authors such as Pushkin, Lermontov, Gogol, Turgenev. *Kresky.*
- 476 Introduction to Russian Literature, U 3**  
**The Russian Realists**  
 (576) W. 3 cl.  
*Prereq.: 104 or permission of instructor.*  
*Conducted in Russian.*  
 Readings from representative authors such as Turgenev, Dostoevsky, Tolstoy, Goncharov. *Kresky.*
- 477 Introduction to Russian Literature, U 3**  
**Impressionism, Critical Realism,**  
**Symbolism, Socialist Realism**  
 (577) Sp. 3 cl.  
*Prereq.: 104 or permission of instructor.*  
*Conducted in Russian.*  
 Readings from representative authors such as Chekhov, Gorky, Bunin, Blok, and Sholokhov. *Kresky.*
- 513 Translation Techniques I U G 5**  
 A. 5 cl.  
*Prereq.: Minimum of 25 cr. hrs. of Russ. or equiv.*  
 Translation of material from the social sciences; discussion of techniques, procedures, methodology, and the art of translation.
- 514 Translation Techniques II U G 5**  
 W. 5 cl.  
*Prereq.: 513 or equiv. or permission of instructor.*  
 Continuation of 513. Work with progressively more difficult passages.
- 571 Basic Russian G 5**  
**for Graduate Students**  
 (690) Su (1st term), A, W. 5 cl.  
*Prereq.: Graduate standing.*  
*Credit does not apply to the minimum hours required for the Master's or doctoral degrees.*  
 Basic Elements of Russian grammar.
- 572 Russian for Research G 5**  
 (691) Su (1st term), A, W, Sp. 5 cl.  
*Prereq.: Grade of "C" or above in 571 or equiv.*  
*Credit does not apply to the minimum hours required for the Master's or doctoral degrees.*  
*Repeatable twice.*  
 Satisfactory completion of this course (grade "A" or "B") will be accepted as evidence of a dictionary reading knowledge in fulfillment of Ph.D. language requirement.
- 608 Review of Grammar U G 5**  
 A. 4 cl.  
*Concur.: 513.*  
*Open only to students in the Certificate Program.*  
 Review of grammar with emphasis on those elements of special value to translators of factual material.
- 609 Advanced Reading, U G 3**  
**Conversation, and Composition I**  
 A. 3 cl.  
*Prereq.: 10 cr. hrs. of 400-level courses in Russ., including 405, 406, or permission of instructor.*  
 Reading of contemporary prose and verse, presentation of oral and written reports, drill in intonation patterns, translation from English into Russian.
- 610 Advanced Reading, U G 3**  
**Conversation, and Composition II**  
 W. 3 cl.  
*Prereq.: 609 or permission of instructor.*
- 611 Advanced Reading, U G 3**  
**Conversation, and Composition III**  
 Sp. 3 cl.  
*Prereq.: 610 or permission of instructor.*
- 612 Study Tour of the USSR U G 15**  
 (517) Sp.  
*Prereq.: Minimum of 25 cr. hrs. of Russ. or equiv. and permission of department chairman.*  
 At The Ohio State University students will be given advanced work in conversation and reading in order to prepare for the tour. In the USSR only Russian will be spoken. Some formal instruction will be given daily by the tour leaders.
- 615 Translation Techniques III U G 5**  
 Sp. 5 cl.  
*Prereq.: 514 or equiv. or permission of instructor.*  
 Translation of modern fiction; comparative and contrastive analysis of problems encountered in translating fiction and factual material.
- 622 Russian Literature in English U G 5**  
**Translation: Soviet Literature**  
 Su, Sp. 4 cl.  
*Prereq.: 420, 421, or permission of instructor.*  
*Not open to students with credit for (616).*  
 A survey of Soviet Russian literature from 1917 to the present. Reading of representative authors such as Fadeyev, Leonov, Fedin, Sholokhov, and Pasternak. *Oulanoff.*
- 630 Applied Linguistics for the U G 5**  
**Russian Major**  
 A. 3 cl.  
*Prereq.: 405, 406.*  
 Introduction to the categories and techniques of applied linguistics, especially phonemic and morphemic analysis; all examples drawn from Russian and English.
- 635 Practical Russian Pronunciation U G 5**  
 W. 3 cl., 2 labs.  
*Prereq.: 405, 406.*  
 Lectures and practical exercises; use of phonetic symbols; corrective exercises; problems of teaching pronunciation.
- 640 Contrastive Structures of U G 5**  
**Russian and English**  
 Su, Sp. 3 cl.  
*Prereq.: 405, 406.*  
 Comparison of the structures of the Russian and English languages stressing practical difficulties in pronunciation and grammar.



**GENERAL PREREQUISITES FOR 600 LEVEL  
COURSES IN LITERATURE**

Nine credit hours in Russian Literature courses 400 level or above.

**645†\* Survey of Russian Poetry U G 5**  
W. 3 cl.

Prereq.: 475, 476, 477.

Development of poetry from the 18th century to the present; readings from major periods and movements.

**650\* Dostoevsky U G 5**  
A. 3 cl.

Prereq.: 9 cr. hrs. in literature courses at the 400 level or above. Given in English but undergraduate majors in Slavic will do prescribed portions of the reading in the original. Graduate students in Slavic must read in the original items starred on the departmental M.A. Reading List.

Critical analysis of the major novels and shorter works. The intellectual and literary development of Dostoevsky.

**651\* Tolstoy U G 5**  
W. 3 cl.

Prereq.: 9 cr. hrs. in literature courses at the 400 level or above. Given in English but undergraduate majors in Slavic will do prescribed portions of the reading in the original. Graduate students in Slavic must read in the original items starred on the departmental M.A. Reading List.

Analysis of all major works including the novels, plays, stories, and important polemical works.

**652\* Turgenev and Chekhov U G 5**  
Su, Sp. 3 cl.

Prereq.: 9 cr. hrs. in literature courses at the 400 level or above. Given in English but undergraduate majors in Slavic will do prescribed portions of the reading in the original. Graduate students in Slavic must read in the original items starred on the departmental M.A. Reading List.

Critical analysis of the major novels, plays, and short stories of both writers. Stylistic similarities and differences.

**653†\* Russian Drama U G 5**  
A. 3 cl.

Prereq.: 9 cr. hrs. in literature courses at the 400 level or above. Given in English but undergraduate majors in Slavic will do prescribed portions of the reading in the original. Graduate students in Slavic must read in the original items starred on the departmental M.A. Reading List.

Emphasis on period from 1850 to present day. Ostrovsky, Chekhov, Gorky, Andreyev, Blok, and Soviet writers Leonov and Kataev.

**654†\* Gogol U G 5**  
W. 3 cl.

Prereq.: 9 cr. hrs. in literature courses at the 400 level or above. Given in English but undergraduate majors in Slavic will do prescribed portions of the reading in the original. Graduate students in Slavic must read in the original items starred on the departmental M.A. Reading List.

Critical analysis of all major works including novels, plays, short stories, and important polemical works.

**655†\* Writers of Satire and Byt U G 5**  
Sp. 3 cl.

Prereq.: 9 cr. hrs. in literature courses at the 400 level or above. Given in English but undergraduate majors in Slavic will do prescribed portions of the reading in the original. Graduate students in Slavic must read in the original items starred on the departmental M.A. Reading List.

Critical analysis of the major works of Aksakov, Goncharov, Saltykov-Shchedrin, and Leskov.

**810 Old Church Slavonic G 5**  
A. 5 cl.

Study of the earliest recorded Slavic language; reading and linguistic interpretation of original documents.

**812\* Readings in Old Church Slavonic Texts G 5**  
W. 3 cl.

Prereq.: 810 or permission of instructor.

Reading and analysis of Church Slavonic Texts of the later period.

**813†\* Readings in Old Russian G 5**  
Sp. 3 cl.

Prereq.: 810 or permission of instructor.

Reading and analysis of Old Russian Texts.

**820 History of the Russian Language G 3**  
(720) W. 3 cl.

A survey of phonetic, morphological, and syntactical changes from the period of Common Slavic to the present. The formation of the Russian literary language.

**823†\* Development of the Russian Literary Language G 5**  
A. 3 cl.

Prereq.: 820 or permission of instructor.

The formation of Russian as a literary language; the role of Church Slavonic elements in its formation and Western influences on Russian.

**826†\* Structure of Russian: Morphology G 5**  
W. 3 cl.

Prereq.: 640 or permission of instructor.

Analysis and description of the morphological system of contemporary standard Russian.

**827†\* History of Russian: Morphology G 5**  
Sp. 3 cl.

Prereq.: 820 or permission of instructor.

Development of Russian morphology from Common Slavic to contemporary Russian with consideration of the place of Russian within East Slavic.

**828\* Structure of Russian: Phonology G 5**  
W. 3 cl.

Prereq.: 640 or permission of instructor.

Description and analysis of the phonological system of contemporary standard Russian.

**829\* History of Russian: Phonology G 5**  
Sp. 3 cl.

Prereq.: 820 or permission of instructor.

Development of Russian phonology from Common Slavic to contemporary standard Russian with consideration of the place of Russian within East Slavic.

**830†\* Russian Literature to 1650 G 5**  
(760) A. 3 cl.

Emphasis on literature of the Kievan period. *Sil'bajoris*.

**831†\* Russian Literature 1650-1800** G 5  
(761) W. 3 cl.

The baroque period, classicism, and sentimentalism. Emphasis on the classical period of the 18th century. *Silbajoris*.

**832\* History of Russian Literary Criticism I** G 5

A. 3 cl.

Prereq.: 2nd yr. graduate standing or permission of instructor.

From the 17th century to 1890; reading and discussion of Prokopovich, Trediakovsky, Sumarokov, Karamzin, Belinsky, Chernyshevsky, Pisarev, Dobroliubov, Mikhailovsky, Grigor'ev, Leont'ev.

**833\* History of Russian Literary Criticism II** G 5

W. 3 cl.

Prereq.: 2nd yr. graduate standing or permission of instructor.

From 1890 to the present; decadents, modernists and symbolists to 1920; Leo Tolstoy; formalism and the sociological method in the 1920's; socialist realism.

**834†\* Russian Folklore** G 5

A. 3 cl.

Prereq.: 2nd yr. graduate standing or permission of instructor.

From beginning to present; proverbs, the oral epic, historical songs, folktales, the folk theatre; analysis of the folklore component in modern Russian literature.

**840†\* Pushkin and His Time** G 5  
(670) Sp. 3 cl.

Prereq.: 475-477 or permission of instructor.

Analysis of *Eugene Onegin* as poetry and an encyclopedia of the times. Social, political, cultural trends in the 1820's and 1830's. Romantic Poets. *Silbajoris*.

**841\* Russian Poetry to 1890** G 5

W. 3 cl.

Readings from the major poets of the 18th and 19th centuries: Lomonosov, Zhukovsky, Pushkin, Lermontov, Tiutchev, Fet, Nekrasov, Polonsky, and others.

**842\* Russian Poetry from 1890 to Present** G 5

Sp. 3 cl.

Major movements and poets: Blok, Bely, Briusov, Balmont, Mayakovsky, Gumilyov, Akhmatova, Esenin, Pasternak, Tvardovsky, Evtushenko, and others.

**843†\* Russian Poetics and Versification** G 5

W. 3 cl.

Prereq.: 645 or 841 or 842 or permission of instructor.

Development of Russian versification from the byliny to the present; folk meter, syllabic verse, syllabo-tonic versification of the 19th and 20th centuries, tonic verse.

**850 Seminar in Russian Literature to 1820** G 3-5

Sp. 2 cl.

**851 Seminar in Russian Literature 1820-1917** G 3-5

Su, A. 2 cl.

**852 Seminar in Soviet Literature** G 3-5  
(850) W. 2 cl.

## Serbo-Croatian

Office: 316 University Hall, 216 North Oval Drive

Assistant Professor Naylor.

**601†\* Serbo-Croatian** U G 3

A. 3 cl.

Prereq.: Russ. 103 or 112 or permission of instructor.

**602†\* Serbo-Croatian** U G 3

W. 3 cl.

Prereq.: 601 or permission of instructor.

**603†\* Serbo-Croatian** U G 3

Sp. 3 cl.

Prereq.: 602 or permission of instructor.

**604\* Intermediate Serbo-Croatian** U G 3

A. 3 cl.

Prereq.: 603 or equiv.

Reading of simple Serbo-Croatian texts from the 19th century.

**605\* Intermediate Serbo-Croatian** U G 3

W. 3 cl.

Prereq.: 604 or permission of instructor.

Reading texts of moderate difficulty, conversation, simple compositions.

**606\* Intermediate Serbo-Croatian** U G 3

Sp. 3 cl.

Prereq.: 605 or permission of instructor.

Reading from modern Serbo-Croatian literature, practice in writing and speaking.

**612†\* Study Tour of Yugoslavia** U G 15

Su (1st term), 2nd term in Yugoslavia.

Prereq.: 605 or equiv. and permission of department chairman.

Students will receive advanced work in conversation and reading in preparation for the tour; in Yugoslavia only Serbo-Croatian will be spoken; daily instruction by tour leaders.

**620\* Serbo-Croatian Literature in English Translation** U G 5

A. 3 cl.

Prereq.: 4th yr. standing or graduate standing or permission of instructor.

Graduate students in Slavic may be required to do some reading in Russ. and French or Ger.

From the medieval period to the beginning of the 19th century; religious literature, heroic songs, written epic, the renaissance and classicism.

**621\* Serbo-Croatian Literature in English Translation** U G 5

W. 3 cl.

Prereq.: 4th yr. standing or graduate standing or permission of instructor.

Graduate students in Slavic may be required to do some reading in Russ. and French or Ger.

Literature of the 19th and 20th centuries; emphasis on Vuk Karadzic, Njegos, and Andric.



## Slavic Languages and Literatures

Office: 316 University Hall, 216 North Oval Drive.

- 230 Slavic Languages and Cultures U 5**  
(530) A. 4 cl.  
*Taught in Engl.*

Historical distribution, contemporary situation, language policies of Slavic nations; interaction of Slavic cultures and their congeners and neighbors; mutual impact of Slavic languages and cultures.

- 519 Slavic Literature in English U G 5**  
**Translation from the Beginning to the Present**  
Sp. 4 cl.

Emphasis on masterpieces of non-Russian Slavic Literatures; epic tradition, Kochanowski, Comenius, Obradovic, Mickiewicz, Shevchenko, Macha, Sienkiewicz, Reymont, Franko, Ukrainka, Vazov, Capek, Hasek, Andrie.

- 693 Individual Studies in Slavic U G 2-10**  
(701) Su, A, W, Sp.  
*Prereq.: Permission of department chairman.*  
*Repeatable to a maximum of 15 cr. hrs.*

- 783 Honors Course U 3-5**  
A, W, Sp.  
*Prereq.: 4th yr. standing; a grade of "A" in at least half of the Slavic courses taken and an average of "B" in the remainder; permission of instructor under whose supervision the work is to be completed and the College Committee on Honors. Failure to receive a grade of "B" in this course is a disqualification for special honors.*  
*Repeatable to a maximum of 15 cr. hrs.*

- 794 Special Group Studies in Slavic U G 2-10**  
A.  
*Prereq.: Permission of chairman.*

- 860 An Introduction to the Slavic Languages G 3**  
(730) W. 3 cl.  
A general survey of all the Slavic languages and their common features. *Robinson.*

- 861†\* History of South Slavic Languages G 5**  
(731) A. 3 cl.  
*Prereq.: Good command of Russ. and acquaintance with a second Slavic language or permission of instructor.*  
Bulgarian, Macedonian, Serbo-Croatian, and Slovenian, with emphasis on Serbo-Croatian and its relation to the other South Slavic Languages. *Naylor.*

- 862\* History of the West Slavic Languages G 5**  
(732) A. 3 cl.  
*Prereq.: Good command of Russ. and acquaintance with a second Slavic language or permission of instructor.*  
Polish, Czech, Slovak, Polabian, Kashub, and Sorbian, with special emphasis on Polish and its relation to the other West Slavic Languages. *Robinson.*

- 870 Seminar in Slavic Philology G 3-5**  
Su, A, Sp. 2 cl.

Historical and comparative studies in the Slavic languages and related language families; including Baltic and Finno-Ugric. *Robinson.*

- 871 Seminar in Slavic Linguistics G 3-5**  
W. 2 cl.  
Descriptive and transformational studies in Russian and the other Slavic languages.

- 875† Seminar in Slavic Literature G 3-5**  
(830) Sp. 2 cl.  
Selected topics from Medieval and Modern Literature.

- 880 Bibliography and Method G 3**  
A. 2 cl.  
Required of all candidates for graduate degrees; to acquaint graduate students with the tools, problems, and methods of linguistic and literary research.

- 881 Private Reading G 2-5**  
Su, A, W, Sp.  
*Prereq.: Permission of department chairman.*

- 884 Special Group Studies in Slavic G 2-10**  
Sp.  
*Prereq.: Permission of chairman.*

- 981 Private Reading G 2-10**  
Su, A, W, Sp.  
*Prereq.: Permission of chairman.*

- 999 Research in Slavic G Arr.**  
(950) Su, A, W, Sp.  
Research for thesis purposes only.

## Social Work

Office: 300 Stillman Hall, 1947 North College Road

**Professors** Medhurst (Director), Batchelor (Emeritus), Cornell, Livingston, Mark (Emeritus), L. Schneiderman, and Shimp; **Associate Professors** Behling, Blackburn (Emeritus), Bounous, Crymes, Daykin, Decker, Hamilton, Mueller, Nichols, Sisson, and Stellman; **Assistant Professors** Bendekovic, Cunningham, D'Angelo, Foster, Good, Hayward, Longo, McMillin, Palmer, Pantalos, Rindfleisch, H. Schneiderman, and Zupancic; **Instructors** Herring, and Shilling.

- 323 Social Welfare as a Social System I U 5**  
(599) Su, A, W, Sp. 2 2-hr. cl.  
*Prereq.: Soc. 101 or 201 or 220 or equiv.*

An introduction to the values, value conflicts, and major goals in the American social welfare system.

- 325 Social Welfare as a Social System II U 5**  
(600) Su, A, W, Sp. 2 2-hr. cl.  
*Prereq.: 323 or equiv.*

Examination of the interrelationships among various social problems, social welfare programs, policy issues, and the role of social work in terms of the American social welfare system.

**327 Social Welfare as a Social System III U 5**

(601) *Su, A, W, Sp. 2 2-hr. cl.*  
*Prereq.: 325 or equiv.*

The study of the organization and integration of services in the American social welfare system.

**380 Introduction to Research Methods in Social Work U 5**

(511) *Su, A, W, Sp. 3 cl., 1 2-hr. lab.*  
*Prereq.: Soc. 101 or 201 or 220 or equiv.*  
*Not open to students with credit for 340.*

Science and society; research design; measuring variables; data collection, processing and analysis; participation in a research project is required.

**423 Social Work and Social Welfare I U 5**

*Su, A, W, Sp. 2 2-hr. cl.*  
*Prereq.: 327 or equiv. and 4th yr. standing.*

An examination of the function of social work and the values, knowledge base, skills, and methods used in providing social services.

**425 Social Work and Social Welfare II U 5**

*Su, A, W, Sp. 2 2-hr. cl.*  
*Prereq.: 423 and 4th yr. standing.*

A critical examination of the field of social work practice.

**427 Social Work and Social Welfare III U 5**

*Su, A, W, Sp. 2 2-hr. cl.*  
*Prereq.: 425 and 4th yr. standing.*

Analysis of the professional nature of social work, its development, relation to other professions, to ethics, ideologies, and personal responsibility to client and society.

**489 Social Welfare Experience U 3-5**

(675) *Su, A, W, Sp. Social Agency Assignment and 1 2-hr. seminar.*  
*Prereq.: 3rd or 4th yr. standing and permission of instructor.*  
*Repeatable to maximum of 10 cr. hrs.*

Individualized and supervised observation and experience in selected social welfare agencies and institutions. Comprehensive report by student and agency supervisor required.

**493 Special Problems U 1-5**

(699) *Su, A, W, Sp.*  
*Prereq.: Social Welfare 3rd or 4th yr. standing, 327, and permission of instructor.*  
*Repeatable to a maximum of 10 cr. hrs.*

Individual or group study projects on problems and services in selected area of social welfare; report required.

**503 Juvenile Delinquency and Its Treatment U G 5**

(627) *A, W, Sp. 2 2-hr. cl.*  
*Prereq.: 325, Anthrop. 261, Soc. 410 or equiv.*

Juvenile delinquency as a social problem; methods of treatment and prevention, including juvenile courts, clinics, probation, parole, correctional institutions, child placement, and recreational programs.

**505 Social Implications in Rehabilitation U G 3**

(637) *A, Sp. 3 cl.*  
*Prereq.: 327 and 10 cr. hrs. of Psychol. or equiv.*  
*Not for graduate credit to students in Soc. Work.*

The significance of disability and employability in their social, medical, and industrial application; rehabilitation as a process; current concepts.

**507 Social Work and Health Services U G 3**

*W. 3 cl.*  
*Prereq.: 327 or equiv., or 10 cr. hrs. in Psychol. or Soc. and 4th yr. standing.*

The nature, organization, and function of programs, facilities in the health practice field; the social and economic implication of chronic disease.

**509 Legal Aspects of Social Work U G 3**

(679) *A, W, Sp. 3 cl.*  
*Prereq.: 327 or equiv. and 10 cr. hrs. of Soc.*  
*Not for graduate credit to students in Soc. Work.*

Law as a means of social control; study of case, statute, and constitutional law most frequently involved in social work practice; legal aid.

**600 Seminar on Methods of Social Work in Corrections P G 3**

(870) *Sp. 1 cl.*  
*Prereq.: Soc. Work graduate standing. 652, 663, 672 or equiv.*

Analysis of selected problems and issues in social work in the field of corrections.

**603 Interpretation of Social Work P G 2**

(712) *Sp. 1 cl.*  
*Prereq.: Soc. Work graduate standing. 661 or equiv.*

Communication, interpretation, and public relations in social work; theoretical and practical aspects of methods, processes, and principles of interpretation.

**615 Field Practice I P G 3-8**

(775) *A, W, Sp.*  
*Prereq.: Soc. Work 1st yr. graduate standing. Arranged by the student's faculty adviser.*  
*Not open to students with credit for 585.*  
*Repeatable to a maximum of 18 cr. hrs.*

Planned visits to social agencies, group analysis of observation, followed by assignment to specific agency for beginning responsibilities with recipients of agency service.

**620 Social Welfare Policy and Services I P G 3**

(701) *A. 1 3-hr. cl.*  
*Not open to students with credit for 520.*

Social welfare as a social institution; its development, philosophical bases, and relation to societal changes.

**621 Social Welfare Policy and Services II P G 3**

(709) *W. 2 1½-hr. cl.*  
*Prereq.: 620 or equiv.*  
*Not open to students with credit for 522.*

Development of social welfare policy and its expression through governmental and voluntary agency programs and services; special focus upon income maintenance.



**631 Human Behavior and Social Environment I P G 3**

(705) A. 2 1½-hr. cl.

Prereq.: Soc. Work graduate standing.

Not open to students with credit for 530.

Determinants of social functioning examined at the individual, group, and community levels of analysis with attention to stress, sub-cultural, and socio-economic processes and conditions.

**632 Human Behavior and Social Environment II P G 3**

(706) W. 2 1½-hr. cl.

Prereq.: Soc. Work graduate standing, 631 or equiv.

Not open to students with credit for 532.

Determinants and dynamics of individual and family social functioning as typically experienced and as occurs in response to stress, from conception through pre-school years.

**633 Human Behavior and Social Environment III P G 3**

(708) Sp. 2 1½-hr. cl.

Prereq.: Soc. Work graduate standing, 632 or equiv.

Not open to students with credit for 534.

Determinants and dynamics of individual and family social functioning as typically experienced and as occurs in response to stress, from latency through the aging years.

**641 Social Work Practice P G 4**

A. 2 2-hr. cl.

Prereq.: Soc. Work graduate standing, 615 concur.

The components of social work practice; values, purpose, sanctions, knowledge, and activities common to all methods, settings, and auspices of professional practice.

**651 Social Casework I P G 3**

(714) W. 2 1½-hr. cl.

Prereq.: Soc. Work graduate standing, 641 or equiv.

Not open to students with credit for 552.

The principles and processes of the social casework method and their differential applications.

**653 Social Casework II P G 3**

(823) Sp. 2 1½-hr. cl.

Prereq.: Soc. Work graduate standing, 651 or equiv.

Not open to students with credit for 554.

Continuation of 651.

**661 Social Community Work I P G 2**

(730) W. 2 cl.

Prereq.: Soc. Work graduate standing, 641 or equiv.

Not open to students with credit for 562.

Function of social worker in developing effective community social welfare programs; principles and methods of determining community needs and stimulating community effort toward improved program development.

**663 Social Community Work II P G 3**

(731) Sp. 3 cl.

Prereq.: Soc. Work graduate standing, 661 or equiv.

Not open to students with credit for 564.

Values, assumptions, and social science propositions underlying planned and consciously effected change in the interest of social welfare.

**671 Social Group Work I P G 3**

(764) W. 2 1½-hr. cl.

Prereq.: Soc. Work graduate standing, 641 or equiv.

Not open to students with credit for 572.

Role of worker in effecting group and program processes toward meeting individual member needs and group objectives.

**673 Social Group Work II P G 3**

(865) Sp. 2 1½-hr. cl.

Prereq.: Soc. Work graduate standing, 671 or equiv.

Not open to students with credit for 574.

Role and professional intervention of the worker in the particularizing of group members.

**680 Research Methods in Social Work P G 5**

(720) Sp. 2 2-hr. cl., 1 2-hr. lab.

Prereq.: Soc. Work graduate standing, 380 or equiv.

Not open to students with credit for 540.

Formulating researchable questions and hypothetical answers for testing, measurement, research design, data collection and processing, statistical analysis, and reporting results.

**693 Special Studies P G 1-5**

(801) Su, A, W, Sp.

Prereq.: Soc. Work graduate standing and permission of instructor.

Repeatable to a maximum of 15 cr. hrs.

Not open to students with credit for 640.

Directed readings and tutorials related to specific problems in the following areas:

- a. Social Work Practice
- b. Social Work Methods
- c. Social Welfare Policy and Services
- d. Human Behavior and Social Environment
- e. Research
- f. Other

**715 Field Practice II P G 6-15**

(875) Su, A, W, Sp.

Prereq.: Soc. Work 2nd yr. graduate standing and 615 or equiv.

Repeatable to maximum of 26 cr. hrs.

Not open to students with credit for 685.

Application of social work theory in selected social agency settings; joint direction and evaluation by agency staff and faculty.

**720 Social Welfare Policy and Services III P G 3**

(851) Sp. 2 1½-hr. cl.

Prereq.: Soc. Work graduate standing, 621 or equiv.

Not open to students with credit for 624.

Analysis and critical evaluation of social welfare policy and issues; role of the profession in affecting policy.

**726 The Administration of Social Work Agencies P G 3**

(843) W. 2 1½-hr. cl.

Prereq.: Soc. Work graduate standing.

Not open to students with credit for 526.

An introduction to the basic factors in the administration of social agencies.

**730 Human Behavior and Social Environment IV P G 4**

(862) A. 2 2-hr. cl.

Prereq.: Soc. Work graduate standing, 633 or equiv.

Not open to students with credit for 630.

Presentation and critical examination of personality, interactional, small group, organizational and community concepts and approaches used in analyzing social dysfunctioning.

**750 Social Casework III P G 3**

(824) A. 2 1½-hr. cl.

Prereq.: Soc. Work graduate standing, 653 or equiv.

Not open to students with credit for 650.

An advanced course in social casework practice theory.

**751 Social Casework IV P G 3**

(826) W. 2 1½-hr. cl.

Prereq.: Soc. Work graduate standing, 750 or equiv.

Not open to students with credit for 652.

Continuation of 750.

**760 Social Community Work III P G 3**

(881) Sp. 3 cl.

Prereq.: Soc. Work graduate standing, 663 or equiv.

Not open to students with credit for 660.

Role of professional worker in setting goals; evaluation of community effort in building balanced programs; effects of national agencies on local programs.

**761 Social Community Work IV P G 3**

(837) W. 2 1½-hr. cl.

Prereq.: Soc. Work graduate standing, 760 or equiv.

Not open to students with credit for 662.

Critical study of contemporary social community work practice; focus on effects of financing, budgeting, changing organizational structure, and patterns of social interaction.

**770 Social Group Work III P G 3**

(866) A. 2 1½-hr. cl.

Prereq.: Soc. Work graduate standing, 673 or equiv.

Not open to students with credit for 670.

Critical study of contemporary social group work practice; the group as a means and context for therapeutic experience.

**771 Social Group Work IV P G 3**

(867) W. 2 1½-hr. cl.

Prereq.: Soc. Work graduate standing, 770 or equiv.

Not open to students with credit for 672.

Critical study of contemporary social group work practice; focus upon differential intervention in special purpose groups.

**794 Special Group Studies P G 1-4**

(802) A, W, Sp.

Prereq.: Soc. Work 2nd yr. graduate standing.

Not open to students with credit for 694.

Group seminars in areas of curriculum as follows:

- a. Social Work Practice
- b. Social Work Methods
- c. Social Welfare Policy and Services
- d. Human Behavior and Social Environment
- e. Research
- f. Other

**802 Seminar in Social Work Education G 3**

Sp. 3 cl.

Prereq.: M.S.W. or permission of instructor.

Development of social work education in North America; problems and issues in curriculum building, teaching methods, and class and field instruction.

**820 Seminar in Social Welfare Policies and Services I G 3**

A. 3 cl.

Prereq.: M.S.W. or permission of instructor.

Historical view of policy formation as influenced by political, economic, and social conditions; analysis and evaluation of processes involved in major developments.

**821 Seminar in Social Welfare Policies and Services II G 2**

W. 2 cl.

Prereq.: 820 or permission of instructor.

Analysis of demographic, political, economic, and other influences upon social policy planning; evaluation of policy planning effectiveness.

**822 Seminar in Social Welfare Policies and Services III G 3**

Sp. 3 cl.

Prereq.: 821 or permission of instructor.

Critical analysis of selected current issues in social policy such as population control, income maintenance, federal, state, and local role in comprehensive social service programs.

**830 Seminar in Social Functioning I G 3**

W. 3 cl.

Prereq.: M.S.W. or permission of instructor.

Critical examination of selected biological, psychological, and social determinants of social functioning and dyadic, small group, organizational and community levels of analysis.

**831 Seminar in Social Functioning II G 3**

Sp. 3 cl.

Prereq.: 830 or permission of instructor.

Problems in knowledge selection and conceptualization as related to social work practice and the biological, behavioral, and social sciences.

**840 Seminar in Social Work Practice I G 3**

A. 3 cl.

Prereq.: M.S.W. or permission of instructor.

Examination of the nature of social work practice; critical analysis of the underlying assumptions and theoretical base of social work methods.

**841 Seminar in Social Work Practice II G 3**

W. 3 cl.

Prereq.: 840 or permission of instructor.

Comparative analysis of social work methods; selected problems and issues.



**880 Seminar in Social Work Research I G 3**

(857) *A. 1 cl. One field project.*  
*Prereq.: Soc. Work graduate standing, 880 or equiv., and permission of instructor.*

Evaluation of selected research reports with reference to their relevance to social welfare and soundness of methodology.

**881 Seminar in Social Work Research II G 3**

(858) *IV. 1 cl. One field project.*  
*Prereq.: Soc. Work graduate standing, 880 or equiv., and permission of instructor.*

Advanced research design and analysis appropriate for testing hypotheses relevant to social welfare knowledge.

**882 Seminar in Social Work Research III G 3**

(859) *Sp. 1 cl. One field project.*  
*Prereq.: Soc. Work graduate standing, 881 or equiv., and permission of instructor.*

Planning research designs and feasible administrative procedures for testing hypotheses relevant to social welfare knowledge.

**893 Individual Studies G 1-3**

*Su, A, W, Sp.*  
*Prereq.: M.S.W. or permission of instructor.*

Directed readings and tutorials related to specific problems and issues in following areas:

- a. Social Work Practice
- b. Social Welfare
- c. Dynamics of Social Functioning
- d. Social Work Research
- e. Social Work Education
- f. Other

**899 Interdepartmental Seminar G 1-5**

*Su, A, W, Sp.*  
 (See under Interdepartmental Seminars.)

**994 Special Group Studies G 2-4**

*Su, A, W, Sp.*  
*Prereq.: M.S.W. or equiv.*  
*Repeatable to a maximum of 20 cr. hrs., not more than 10 of which shall be in any one of the following areas.*  

- a. Social Work Practice
- b. Social Welfare Policy
- c. Dynamics of Social Functioning
- d. Other

**998 Research in Social Work: Thesis G Arr.**

(950) *Su, A, W, Sp.*  
 Research for thesis purposes only.

**999 Research in Social Work: Dissertation G Arr.**

(950) *Su, A, W, Sp.*  
 Research for dissertation purposes only.

# Sociology

Office: 112 Hagerty Hall, 1775 South College Road

Professors Zetterberg (Chairman), Clarke (Vice-Chairman), Berry (Emeritus), Bullock, Cuber, Denune (Emeritus), Dinitz, Dynes, Jonassen, Mangus, Nagi, Oyler, Peterson, Quarantelli, Reckless, and Sletto; Associate Professors Corwin, Eynon, Garbin, Hall, Helfrich, Nissen (Emeritus), Noel, Schwirian, VanderZanden, and Warshay; Assistant Professors Blain, Clatworthy, Cleaver, Conforti, Fletcher, Knudsen, Ludwig, Roth, Thomas, and Vaughan; Instructors Card, Lynn, and Wysong; Adjunct Professor Folkman; Adjunct Assistant Professor Martin.

**101 Introductory Sociology U 5**

(401) *Su, A, W, Sp. 5 cl.*  
*Not open to students with credit for 201 or equiv. or Rur. Soc. 105 or equiv.*

A study of the fundamental concepts of sociology and an introduction to the analysis of social problems. Cuber and Staff.

**201 Fundamentals of Sociology U 5**

(507) *A, W, Sp. 5 cl.*  
*Prereq.: Hist. 123 or equiv.*  
*Not open to students with credit for 101 or equiv.*

A study of the nature of society and the factors affecting its development, culture, personality: groups and institutions; selected social problems.

**202 Social Trends and Problems U 5**

(402) *Su, A, W, Sp. 5 cl.*  
*Prereq.: 5 cr. hrs. in Soc. or equiv. with permission of instructor.*

Analysis of recent social trends and contemporary social problems. Dinitz, Conforti, and Staff

**204 The Standard of Living U 4**

(510) *Sp. 4 cl.*  
*Prereq.: 5 cr. hrs. in Soc. or equiv. and permission of instructor, or Econ. 201 or equiv.*

A consideration of the content of the various standards of living in American society, their economic and social significance; problems in family budgets and retail buying. Thomas.

**206 Social Implications of Low Income U 3**

(518) *Sp. 3 cl.*  
*Prereq.: 5 cr. hrs. in Soc. or equiv. with permission of instructor.*

A study of low-income peoples, especially concerning the effect of low-income on them, and their consequent social participation. Vaughan.

**207 Social Change U 3**

(562) *A, W, Sp. 3 cl.*  
*Prereq.: 5 cr. hrs. in Soc. or equiv. with permission of instructor.*

Recent social changes, especially in Western civilization and the United States: types of societies in historical perspective; requirements of a good society. Eynon.

**208 Sociological Interpretation of Modern Values U 5**

(620) *Sp. 5 cl.*  
*Prereq.: 101 or 201 or equiv.*

The identification, classification, and measurement of values; values in relation to personality, social structure, and social problems; analysis of selective evaluative interpretations of contemporary society. *Clatworthy*.

## 220 Sociology of Education U 5

(407) *Su, A, Sp. 3 cl., 2 2-hr. labs.*

*Prereq.: 5 cr. hrs. in Soc.*

Current social trends as they affect education; backgrounds of school children, social status of teachers, role of power and bureaucracy. *Corwin and Thomas*.

## 250 Types of Sociological Inquiry U 5

(530) *Su, A, W, Sp. 3 cl., 2 2-hr. lab.*

*Prereq.: 5 cr. hrs. in Soc. or equiv. with permission of instructor.*

Introduction to sociological research techniques, methodological approaches, and relevant quantitative procedures. *Cleaver and Hall*.

## 280 Race Problems in the United States U 3

(506) *A, W, Sp. 3 cl.*

*Prereq.: 5 cr. hrs. in Soc.*

*Not open to students with credit for 480 or equiv.*

The cultural background, distribution, and adjustments of selected racial and ethnic groups in the United States. *VanderZanden and Noel*.

## 290 The Sociology of Urban Life U 5

(505) *A, W, Sp. 4 cl., 1 2-hr. lab.*

*Prereq.: 5 cr. hrs. in Soc. or equiv. with permission of instructor.*

The place of the city in social organization; the emergence, nature, and problems of modern urbanism; projects based on census and field data. *Jonassen, Schwirian, and Cleaver*.

## 330 Factors in Successful Marriage U 3

(520) *Su, A, W, Sp. 3 cl.*

An understanding of successful married life; types of problems faced by dating and married couples and the methods whereby they may be dealt with successfully. *Clatworthy and Folkman*.

## 395 Population Dynamics and Social Change U 3

(638) *W, Sp.*

*Prereq.: 10 cr. hrs. in Soc. or equiv. and permission of instructor.*

Changes in size, composition, and distribution of populations, the dynamics underlying them, and their social consequences. *Peterson and Schwirian*.

## 401 Social Control U 3

(663) *Sp. 3 cl.*

A theory of social control and analysis of selected cases of social control; text, class reports, projects.

## 403 Contemporary Soviet Society U 5

(621) *Sp. 5 cl.*

*Prereq.: 10 cr. hrs. in Soc. and 15 cr. hrs. in other social sciences or permission of instructor.*

Organization, development, and problems of the Communist Party, the collective farm, the school, professional occupations, economic planning, and other contemporary Soviet institutions. *Card*.

## 405 Collective Behavior and Social Movements U 3

(623) *A, W, Sp. 3 cl.*

Examination of the dynamic social processes characteristic of mass societies through an analysis of crowds, mobs, cults, publics, and the initial stages of social movements. *Quarantelli and Warshay*.

## 410 Criminology U 5

(625) *Su, A, W, Sp. 5 cl.*

*Prereq.: 3rd yr. standing.*

The nature, variation, and causes of crime and delinquency; studies of criminal liability, criminal careers, and organized racketeering. *Dinitz, Eynon, and Reckless*.

## 411 Penology U 5

(626) *A, Sp. 5 cl.*

*Prereq.: 410 or equiv.*

The treatment of adult offenders in detention and incarcerations; short and long term institutions; field trips required. *Eynon*.

## 430 The Modern Family U 4

(600) *Su, A, W, Sp. 4 cl.*

Impact of modern culture upon the family, including size of family, member relationships, economic problems, divorce, desertion, and status of women. *Clarke and Knudsen*.

## 432 Types of Family Organization U 4

(601) *W. 4 cl.*

*Prereq.: 430 or equiv.*

Analysis of family organization in various societies and groups; problems of comparative study. *Knudsen and Clarke*.

## 434 Social Orientation of Children U 4

(680) *Su, W. 4 cl.*

A study of the ways in which society socializes children; current breakdown in the socializing processes and implications for the school and other educational agencies. *Clarke*.

## 440 Medical Sociology U 3

(650) *A, W. 3 cl.*

*Prereq.: 10 cr. hrs. in Soc. or equiv. and permission of instructor.*

An analysis of the sociological factors in illness and health, as well as the role of medicine and the health professions in modern society. *Nagi and Fletcher*.

## 462 Sociology of Complex Organizations U 3

(644) *Sp. 3 cl.*

*Prereq.: 10 cr. hrs. in Soc. or permission of instructor.*

Functioning of large complex social groupings; goals, structures, coordination, dispersion, survival, change as seen in various organizations: e.g.—governmental, educational, religious, business, and occupational organizations. *Dynes*.

## 463 Social Stratification U 4

(676) *Su, A, W, Sp. 4 cl.*

Class distinction as a phase of social differentiation; origin and characteristics of social class; significance for modern society of class consciousness, class struggle, and social mobility. *Dynes and Corwin*.



**464 Human Relationships in Industry U 3**

(612) A, W, Sp. 3 cl.

Social processes and problems associated with contemporary industry including growth of formal and informal organizational structure, communication processes, attitude problems and morale. *Helfrich.*

**465 Work and Leisure in Mass Society U 4**

(645) Sp. 4 cl.

An analysis of current relationships between work and leisure, emphasizing social implications of increased leisure time and changing conceptions of work and leisure. *Clarke.*

**467 Religious Institutions in Modern Society U 3**

(648) A, W. 3 cl.

The social role of religious institutions and beliefs, with particular reference to the United States; the relation between religion and other aspects of society. *Dynes and Knudsen.*

**470 Social Factors in Personality U 4**

(622) Su, A, W, Sp. 4 cl.

Analysis of relationships between social structure and personality. Language: its consequences for social behavior. Socialization: learning of motives and social roles. Personality: development, organization, disorganization. *Quarantelli, Warshay, and Thomas.*

**480 Race Relations U 3**

(604) Su, A, W, Sp. 3 cl.

A survey of the problems arising from the contacts of people who differ as to race and culture. *VanderZanden and Noel.*

**488 Development of Sociological Thought U 5**

(660) A, W, Sp. 5 cl.

Prereq.: 15 cr. hrs. in Soc. or equiv.

A survey of major concerns and conceptions in sociology in relation to their social-historical setting from 1800 to the present time. *Vaughan and Warshay.*

**492 The School and the Community U 3**

(678) W. 3 cl.

The school as a social institution in the American community; the sociological importance of community structures, processes, and problems in determining school-community relationships. *Jonassen.*

**Culture Patterns and Personality**

(See Anthro. 509.)

**523 Sociological Analysis of Educational Organizations U G 5**

W. 5 cl.

Comparisons of the structures and functions of educational systems, elementary through university; recruitment and allocation of personnel and resources, power, conflict, and boundary maintenance. *Corwin.*

**560 Social Organization in a Changing World U G 4**

(677) A. 4 cl.

An examination of present institutional organization in American society; the impact of world problems upon American culture.

**590 The Community U G 4**

(614) A, W. 4 cl.

Development of the modern community; approaches to the study of communities; significance of processes and value systems for community organization and disorganization. *Jonassen.*

**608 Sociological Aspects of Mass Communication U G 3**

(627) W. 3 cl.

Selective analysis of communicators, contents, audiences, and effects of mass media; research procedures, findings, and theoretical formulation, drawn primarily from studies of popular culture. *Quarantelli.*

**615 Control and Prevention of Crime and Delinquency U G 3**

(725) A. 1 2-hr. cl. One field project.

Prereq.: 410 or equiv.

Analysis of the operational effectiveness of special measures and programs pointed toward the control and prevention of crime and delinquency. *Reckless.*

**650 Sociological Research Methods U G 3**

(630) Su, A, W. 3 cl.

An introduction to the analysis of sociological data; measurement theory and techniques of interpretation; sampling procedures in sociological research and implications for inference and generalization. *Bullock, Nagi, and Schwirian.*

**661 Analysis of Small Groups U G 4**

(649) A. 4 cl.

Prereq.: 10 cr. hrs. in Soc. and permission of instructor.

Analysis of group structure and processes; examination of roles, interpersonal structure, leadership; observation of groups in laboratory and non-laboratory settings. *Roth.*

**666 Political Sociology U G 3**

W. 3 cl.

Examination of structural and cultural factors as related to the nature of political systems; consideration of the organization and roles of political and para-political groups. *Hall.*

**680 General Sociology U G 4**

(629) A. 4 cl.

A critical examination of the more fundamental ideas and concepts of modern scientific sociology. *Warshay.*

**687 Development of Social Thought U G 4**

(668) A. 4 cl.

Prereq.: 10 cr. hrs. in Soc. or equiv. and permission of instructor.

A sociological analysis of Western ideas on social relations before the advent of the social sciences. *Warshay and Vaughan.*

**693 Special Problems U G 1-4**  
(700) *Su, A, W, Sp.**Prereq.: 10 cr. hrs. in Soc., permission of instructor.*

- 693.01 Sociological Theory
- 693.02 Social Organization and Planning
- 693.03 Medical Sociology
- 693.04 Criminology and Penology
- 693.05 Sociology and Education
- 693.06 Race Relations
- 693.07 Social Psychology
- 693.08 The Family
- 693.09 Research Methodology
- 693.10 Urban Sociology
- 693.11 Undergraduate Seminar on Contemporary Sociological Issues
- 693.12 Unclassified
- 693.13 Population

**Introduction to National Security***(See Nat. Sec. Pol. S. 702)***704 Problems in the Design of Sociological Research U G 3***(707) A, W, Sp. 3 cl.**Prereq.: 250 or equiv.**Repeatable to a maximum of 9 cr. hrs. Individual sections may not be repeated.*

- 704.01 Development and Verification of Sociological Theory
  - A.
- 704.02 Experimental Research Methods
  - W.
- 704.03 Advanced Analysis of Sociological Data
  - Sp.

**752 Methods of Social Measurement U G 3***(706) Su, A, Sp. 3 cl.**Prereq.: 650 or equiv. or Soc. Work 540.**Approaches and techniques in the development and testing of social measurement instruments. Bullock and Sletto.***Research Principles and Techniques in National Security***(See Nat. Sec. Pol. S. 785)***Seminar in National Security Research***(See Nat. Sec. Pol. S. 801.)***805 Social Movements G 3***Sp. 3 cl.**An examination of theories and research on non-traditional group efforts to change social systems and institutions; emphasis on contemporary societies and movements. Quarantelli.***818 Advanced Criminology G 3***(864) Sp.**Prereq.: 410 or equiv.**A critical study of the most important aspects of criminology. Reckless, Dinitz, and Eynon.***859 Practicum in Sociological Research G 3***(808) W, Sp. 3 cl.**Prereq.: 704 and 752 or equiv.**Supervised practical experience in the independent execution of sociological research, the application of appropriate analytical techniques, and preparation of research reports.***868 Seminars in Social Organization G 3***(861) A, W, Sp.**Prereq.: Two courses in social organization and permission of instructor.**A critical examination of selected theoretical and research problems in organizations functioning in the areas listed below.*

- A. Systems of Community Organization.
- W. Small Groups, Educational Organizations.
- Sp. Health Organizations.

**891 Contemporary Sociological Theory G 3***(865) A, W, Sp.**Prereq.: 488 or equiv.**A critical examination of problems and issues central to developments in sociological theory. Warshay and Vaughan.*

- A. Recent Theoretical Trends and Issues.
- Sp. Current Schools and Systems.

**894 Sociological Analysis of the Community G 3***(714) Sp. 3 cl.**Prereq.: 290 or 590 or equiv. and permission of instructor.**Methods, techniques, sources of data and objectives of community analysis. Jonassen.***895 Seminars in Sociology G 1-5***(900) Su, A, W, Sp.**Fields of specialization are listed under the description of 693. Registration in 895 should be followed by a decimal indicating the field of the seminar.***899 Interdepartmental Seminar G 1-5***Su, A, W, Sp.**(See under Interdepartmental Seminars.)***998 Research in Sociology: Thesis G Arr.***(950) Su, A, W, Sp.**Research for thesis purposes only.***999 Research in Sociology: Dissertation G Arr.***(950) Su, A, W, Sp.**Research for dissertation purposes only.*



# Spanish

Office: 116 Derby Hall, 154 North Oval Drive

Professors Bulatkin (Chairman), Armitage, Babcock, Froesch, Griffin, Rogers, and Selig (Consultant); Assistant Professors Angelo, Iglesias, Levisi, Pardo, and Reeve; Instructor Imhoff; Lecturer Thalman.

## 101 Elementary Spanish U 5

(401) *Su, A, W, Sp. 5 cl.*

*May not be taken concur. with French 101-102, Port. 101-102, Ital. 101-102. Not open to students who are not eligible to take Engl. 101. Credit in 101 will be counted toward graduation only if followed by successful completion of 102, or if taken after successful completion of the fourth regular university course in another foreign language.*

Elements of Spanish grammar, with oral and written exercises; attention to ear training and oral practice; elementary reading based on Spanish geography, history, and customs.

## 102 Elementary Spanish U 5

(402) *Su, A, W, Sp. 5 cl.*

*Prereq.: 101.*

*May not be taken concur. with French 101-102, Ital. 101-102, Port. 101-102.*

The elements of Spanish grammar with abundant oral and written exercises; development of conversational skill; reading vocabulary building, attention to Spanish idioms.

## 103 Intermediate Spanish U 5

(403) *Su, A, W, Sp. 5 cl.*

*Prereq.: 102.*

Continuation of Spanish grammar, attention to idioms; reading of short stories, plays, and novels.

## 104 Intermediate Spanish U 5

(404) *Su, A, W, Sp. 5 cl.*

*Prereq.: 103 or 112.*

Reading of Spanish plays, short stories, and novels; emphasis on oral practice and Spanish idioms.

## 105 Elementary Spanish Conversation U 5 and Composition

(410) *Su, A, W, Sp. 5 cl.*

*Prereq.: 104.*

*Course conducted in Span.*

Intensive practice in oral and written Spanish, based on texts and periodicals concerned with contemporary Spain and Spanish America; grammar and idiom review.

## 112 Intensive Spanish U 5, 10, 15

*Su. 15 cl. Enrollment limited to 25 students.*

*Full time of student and full fees required.*

*Prereq.: Permission of department chairman.*

*Equiv. of 101, 102, and 103.*

*Students with credit for 101 or the equiv. may not register for more than 10 cr. hra. Students with credit for 101 and 102 or the equiv. may not register for more than 5 cr. hra. Students with credit for 103 or the equiv. may not register for credit.*

Elementary and intermediate Spanish; intensive drill in forms, syntax, vocabulary, and idiom; reading of short stories and plays in Spanish.

## 162 Elementary-Intermediate Spanish U 5 for Selected Students

(415) *W. 5 cl.*

*Prereq.: Grade of "A" in 101 and permission of department. Successful completion of 101-162-163 fulfills language requirements and satisfies prereq. for 400 courses.*

*Angelo.*

## 163 Elementary-Intermediate Spanish U 5 for Selected Students

(416) *Sp. 5 cl.*

*Prereq.: 162.*

*Successful completion of 101-162-163 fulfills language requirements and satisfies prereq. for 400 courses.*

Continuation of 162.

## 271 Spanish Literature in English U 5 Translation

(570) *W. 5 cl.*

*Not open to Span. majors.*

Selection of major works in Spanish literature in English translation from the early Renaissance period to the present.

## 401 Review Grammar and Composition U 3

(518) *A, W, Sp. 3 cl.*

*Prereq.: 105.*

Review of Spanish grammar; composition on assigned topics and practice in translation.

## 402 Intermediate Spanish U 3 Conversation and Composition

(521) *A, Sp. 3 cl.*

*Prereq.: 105.*

Vocabulary building, practice in speaking Spanish, conversation and composition dealing with aspects of Spanish life.

## 403 Intermediate Spanish U 3 Conversation and Composition

(522) *W. 3 cl.*

*Prereq.: 105.*

Vocabulary building, practice in speaking Spanish, conversation and composition dealing with aspects of Spanish and Spanish American life.

## 404 Spanish Pronunciation U 5

(519) *A, W, Sp. 5 cl.*

*Prereq.: 105.*

Abundant practice with corrective exercises; some attention to problems of teaching pronunciation.

## 421 Introduction to Modern Spanish U 5 Literature

(517) *Su, A, W, Sp. 5 cl.*

*Prereq.: 104.*

Reading and discussion of important modern works.

## 422 Prose Fiction and Essays U 5

(531) *A, Sp. 5 cl.*

*Prereq.: 421.*

Reading and discussion of various types of modern prose fiction and essays.

**423 Drama and Poetry U 5**

(532) W. 5 cl.

Prereq.: 421.

A selection of plays and poems representing the principal movements and tendencies of the modern period.

**571 Basic Spanish G 5  
for Graduate Students**

Su, A, W, Sp. 5 cl.

Prereq.: Graduate standing.

Credit does not apply to the minimum number of hours required for the Master's or doctoral degrees. No audit.

Designed primarily for students who have no formal preparation in Spanish, covering basic grammar and vocabulary.

**572 Spanish for Research I G 3**

Su, A, W, Sp. 3 cl.

Prereq.: Grade of "C" or above in 571, or equiv. preparation demonstrated by a placement test.

Credit does not apply to the minimum number of hours required for the Master's or doctoral degrees. No audit.

Repeatable twice.

Satisfactory completion of this course (grade of "A" or "B") will be accepted as evidence of a dictionary reading knowledge in fulfillment of Ph.D. language requirement.

**573 Spanish for Research II G 3**

Su, A, W, Sp. 3 cl.

Prereq.: Grade of "A" or "B" in 572, or equiv. preparation demonstrated by a placement test.

Credit does not apply to the minimum number of hours required for the Master's or doctoral degrees. No audit.

Repeatable twice.

Satisfactory completion of this course (grade of "A" or "B") will be accepted as evidence of a thorough reading knowledge in fulfillment of Ph.D. language requirement.

**605 Advanced Composition U G 3  
and Conversation**

Su, A, W. 3 cl.

Prereq.: 401 and 402 or 403.

This course is conducted in Spanish; its subject matter will be for the most part the history, customs, and manners of Spain and Spanish America.

**607 Modern Spanish Syntax U G 5**

(617) Su, W, Sp. 5 cl.

Prereq.: 421, 401, and 402 or 403.

Systematic study of Spanish grammar with composition and other exercises based on contemporary authors; modern tendencies in syntactic analysis.

**609 Spanish Phonetics U G 5**

(620) A, W. 4 cl., 1 hr. lab.

Prereq.: 421 or 401, 404 and 402 or 403.

A detailed analysis of the phonological structure of Spanish and a contrastive comparison with English; practical problems of pronunciation and of teaching are stressed.

**612† Study Tour U G 15  
of Hispanic America**

Sp.

Prereq.: Minimum of 25 cr. hrs. in Span. and permission of department chairman.

Not open for graduate credit to majors in Span.

The first five weeks will be devoted to intensive study of Spanish on this University campus; the remainder of the course will be spent in travel in South America. While traveling, formal language instruction will be given by the tour leader; in South America, only Spanish will be spoken.

**620 Main Currents U G 5  
in the Development  
of Spanish Literature**

A. 5 cl.

Prereq.: 10 cr. hrs. of Span. literature at the 400 level or permission of instructor.

Not for graduate credit for majors in Span.

Spanish literature from the Middle Ages to the present with emphasis on the evolution of major movements.

**621 Cervantes U G 5**

(614) Sp. 4 or 5 cl.

Prereq.: 421, and 422 or 423.

An intensive study of *Don Quixote*. *Levisi*.

**622†\* Romanticism U G 3  
in the Hispanic World**

(631) A. 3 cl.

Prereq.: 421, and 422 or 423.

A study of dramatists, poets, novelists, and essayists designed to bring out the literary unity of the Hispanic world in the Romantic period. *Frosch*.

**623\* The Spanish Novel U G 5  
of the Nineteenth Century**

(607) Su. 4 or 5 cl.

Prereq.: 421, and 422 or 423.

A study of the development of the modern Spanish novel with particular attention to the works of Pérez Galdós.

**624†\* Contemporary Spanish Fiction U G 3**

(608) W. 3 cl.

Prereq.: 421, and 422 or 423.

A study of Spanish narrative prose from the generation of '98 to the present time. *Frosch*.

**625\* Modern Drama U G 3**

(610) W. 3 cl.

Prereq.: 421, and 422 or 423.

A survey of European drama at the beginning of the century and a detailed study of the Spanish dramatists from Benavente to Alfonso Sastre.

**626\* Spanish American Literature U G 5  
Through Romanticism**

(637) W. 5 cl.

Prereq.: 10 cr. hrs. in Span. literature at the 400 level.

A study of the chronicles and main trends in colonial Spanish American literature; works of the Inca Garcilaso, Sor Juana and Alarcón will be included.

**627\* Spanish American Literature U G 5  
Since Romanticism**

(638) Sp. 5 cl.

Prereq.: 10 cr. hrs. in Span. literature at the 400 level.

The advent of 'americanismo literario'. A study of the romantics and the schools that followed up to 'modernismo'.



**628 Contemporary Spanish American Fiction U G 3**

(639) A. 3 cl.

Prereq.: 421, and 422 or 423.

The development of narrative prose in Spanish America from 1920 to the present. *Frosch*.

**629†\* The Generation of 1898 U G 3**

(640) A. 3 cl.

Prereq.: 421, and 422 or 423.

Readings in fiction, poetry, and the essay from such authors as Unamuno, Ozorin, Valle-Inclán, Baroja, A. Machado and J. R. Jiménez.

**630†\* Contemporary Hispanic Poetry U G 5**

(641) Sp. 5 cl.

Prereq.: 421, and 422 or 423.

Currents of Spanish and Spanish American poetry from Rubén Darío to the present time.

**631\* Spanish Literature U G 3-5**

(645) Su. 5 cl.

Prereq.: 421, and 422 or 423.

Repeatable to a maximum of 15 cr. hrs.

**694 Special Group Studies in Spanish U G 1-5**

Su, A, W, Sp.

Prereq.: Permission of instructor.

Repeatable to a maximum of 15 cr. hrs.

**721†\* Drama of the 16th and 17th Centuries U G 5**

(611) Sp. 5 cl.

Prereq.: 421, and 422 or 423.

An intensive study of a limited number of plays of the representative dramatists of the 16th and 17th centuries.

**722†\* Poetry of the 16th and 17th Centuries U G 5**

(612) A. 5 cl.

Prereq.: 10 cr. hrs. in Span. literature at the 400 level.

Major poets and movements of the 16th and 17th centuries.

**723\* Prose of the 16th and 17th Centuries U G 5**

(613) A. 4 or 5 cl.

Prereq.: 421, and 422 or 423.

Selected prose works by major Renaissance and Baroque authors.

**783 Honors Course in Spanish U 3-5**

(705) A, W, Sp.

Conference, library or phonetics laboratory arr.  
Prereq.: 4th yr. standing with a record of "A" in at least half of the Span. courses and an average of "B" in the remainder, and permission of department and the Honors Committee of the College.

Repeatable to a maximum of 15 cr. hrs.

This course offers undergraduates with special aptitudes a greater opportunity to do independent study than is possible in the ordinary course.

**811 History of the Spanish Language G 3**

(729) A. 3 cl.

Prereq.: M.A. candidacy or permission of instructor.

A survey from Roman times to the present with emphasis on cultural and social factors; the relation of language to literature. *Griffin*.

**812 Old Spanish I G 3**

(805) W. 3 cl.

Prereq.: Knowledge of Latin.

The development of Old Spanish phonology and morphology with an introduction to the reading of Old Spanish texts. *Griffin*.

**813 Old Spanish II G 3**

(806) Sp. 3 cl.

Prereq.: 812.

A continuation of Old Spanish I, with attention to syntax, vocabulary and dialectology. *Griffin*.

**815\* Spanish Language in America G 3-5**

Sp.

Prereq.: 620 or permission of instructor.

A linguistic approach to the theoretical and practical problems of Spanish-American dialectology. *Pardo*.

**820 Introduction to Medieval Literature G 3**

(780) W. 3 cl.

Prereq.: M.A. candidacy or permission of instructor.

Selected readings in Spanish poetry and prose from the beginning to the end of the fifteenth century, partly in modernized versions. *Pardo*.

**821 Old Spanish Literature G 3**

Sp.

A literary approach to medieval poetry and prose.

**822\* Topics and Problems in Spanish Literature: Golden Age G 5**

A. 3 cl.

Prereq.: 20 cr. hrs. of Span. literature at the graduate level. Qualified M.A. candidates may register with permission of instructor.

Intensive exploration of a special topic or problem.

**823†\* Topics and Problems in Spanish Literature: 19th Century G 5**

A. 3 cl.

Prereq.: 20 cr. hrs. of Span. literature at the graduate level. Qualified M.A. candidates may register with permission of instructor.

Intensive exploration of a special topic or problem.

**824\* Topics and Problems in Spanish Literature: 20th Century G 5***W. 3 cl.**Prereq.: 20 cr. hrs. of Span. literature at the graduate level. Qualified M.A. candidates may register with permission of instructor.*Intensive exploration of a special topic or problem.  
*Babcock.***825†\* Topics and Problems in Spanish Literature: Spanish American Literature G 5***Sp. 3 cl.**Prereq.: 20 cr. hrs. of Span. literature at the graduate level. Qualified M.A. candidates may register with permission of instructor.*

Intensive exploration of a special topic or problem.

**831 Seminar in Spanish Literature G 2-5***(818) Su, A.**Prereq.: Permission of instructor.**Pardo***832 Seminar in Spanish Literature G 2-5***(817) Su, W.**Prereq.: Permission of instructor.**Levisi.***833 Seminar in Spanish Literature G 3-5***(818) Sp.**Prereq.: Permission of instructor.**Frosch.***885 Introduction to Methods in the History and Criticism of Literature G 5***(731) A. 5 cl.*Selected readings in basic literary history, criticism, and theory, with practice in the use of standard bibliographical aids to scholarship. *Frosch.***886† Bibliography and Method G 3***(880) Sp.*

A course to acquaint graduate students with problems, tools, and methods of linguistic and literary research.

**993 Individual Studies in Spanish G 1-5***Su, A, W, Sp.**Prereq.: Permission of instructor.**Repeatable to a maximum of 15 cr. hrs.***994 Special Group Studies in Spanish G 1-5***Su, A, W, Sp.**Prereq.: Permission of instructor.**Repeatable to a maximum of 15 cr. hrs.*

Investigation of minor problems in the various fields of Spanish literature and language.

**999 Research in Spanish Language or Literature G Arr.***(950) Su, A, W, Sp.*

Research for thesis purposes only.

## Speech

Office: 205 Derby Hall, 154 North Oval Drive

Professors Yeager (Chairman), Abernathy (Adjunct), Black (Regents), Brooks, Douglas, Fotheringham, Golden, Hull, Irwin, Knowler, Lewis, Lynch, Mall, Moser, Stromsta, Summers (Emeritus), Wagner, Wiley (Emeritus); Associate Professors Brittin, Ewing, Goff, Monaghan, Rieke, and Riley; Assistant Professors Brannon, Grimm (Adjunct), Koenig, Lawson, Nielsen, and Reynolds.

**035 American Speech for International Students U 5***(405) Su, A, W, Sp. 5 cl.**5 cr. hrs. will be added to graduation requirements. Often taken in conjunction with Engl. 071.*Assignment to both English and the appropriate Speech course is made on the basis of examinations given at the beginning of each quarter to all new students whose native language is not English. *Black and Goff.***040 Personal Speech and Hearing Rehabilitation U 0 or 3***(410) Su, A, W, Sp. 5 cl.**Credit shall not count toward graduation.**For students with speech or hearing disorders.**Repeatable.***040.01 Articulation****040.02 Voice****040.03 Stuttering****040.04 Impaired Hearing****040.05 Foreign Dialect***Goff, Stromata, Irwin, and Moser***105 Principles of Effective Speaking U 5***(401) Su, A, W, Sp. 5 cl.*The principles of effective speaking; preparation and presentation of informative and persuasive speeches; the speech processes with emphasis on speech as a thinking process. *Douglas.***110 Group Discussion U 5***(402) Su, A, W, Sp. 5 cl.*

Designed to develop the attitudes, skills, and knowledge of methods favorable to effective participation in discussion by conferences, committees, and other small groups.

**115 Broadcasting in America U 3***(425) A, W, Sp. 3 cl.*The development and structure of broadcasting to stimulate critical appreciation and understanding of the role and influence of television and radio in American life. *Koenig.***120 Training the Speaking Voice U 3***(509) A, W, Sp. 3 cl.**Not open to students with credit for 135.*Study and application of principles basic to the development of above-average skills for public speaking, acting, oral interpretation, and broadcasting activities. *Riley.***125 Parliamentary Law U 3***(511) A, W, Sp. 3 cl.*Study of the rules of procedure by which self-governing organizations transact business. *Lawson.*



- 135 Voice and Diction** U 3  
(417) *Su, A, W, Sp. 3 cl.*  
*Not open to students with credit for 120.*  
Introductory study of the principles of a satisfactory speaking voice; designed for the student concerned about the adequacy of his speech. *Black, Irwin, and Goff.*
- 201 Introduction to Speech** U 5  
(416) *Su, A, W, Sp. 5 cl.*  
This course is designed for students who wish to have a broad overview and understanding of the field of speech. *Brooks.*
- 205 Communication Co-Curricular Activities** U 1  
(A) *Su, A, W, Sp.*  
*Each category repeatable to a maximum of 6 cr. hrs.*  
*Do not register for this course without written permission of instructor.*  
Participation in specialized activities.  
a. Communication Laboratory Projects. *Knower.*  
b. Forensics. *Lawson.*  
c. Oral Interpretation. *Reynolds.*  
d. Television and Radio Broadcasting. *Nielsen.*
- 209 Communication Theories and Models** U 3  
*A, W, Sp. 3 cl.*  
Communication model characteristics; structure and function, general principles; basic processes and major types of activities; receivers and effects; motivations, value systems, and norms. *Douglas and Knower.*
- 213 Rhetoric in Western Thought** U 5  
*W, Sp. 5 cl.*  
Rhetorical theories as they reflected and affected society from Greece to modern times; relations to logic, ethics and poetics; the classical tradition versus sophistical concepts. *Golden and Lawson.*
- 217 Rhetoric of American Issues** U 5  
(502) *A, W, Sp. 5 cl.*  
A study of selected American orators, their speeches, and the audience reactions on significant issues during 1830-1962. *Golden and Rieke.*
- 221 Fundamentals of Oral Interpretation** U 5  
(505) *Su, A, W, Sp. 5 cl.*  
Introductory course to develop understanding and appreciation of literature through the oral re-creation of literary materials and critical listening. *Brooks and Reynolds.*
- 225 Persuasive Communication** U 5  
(506) *A, W, Sp. 5 cl.*  
Analysis of persuasive communication as a form of influence; the process and functions involved, its potential and limitations for individuals and organizations. *Fotheringham.*
- 229 Television and Radio Performance** U 3  
(560) *Su, A, W, Sp. 3 cl.*  
Role, function, and responsibilities of the performer in television and radio; non-dramatic and dramatic performance before the microphone and camera; critical evaluation. *Lynch.*
- 235 Speech Functions and Responsibilities of the Teacher** U 3  
(504) *Su, A, W, Sp. 3 cl.*  
A study of speech and hearing deviations commonly found in the classroom and of the role of the teacher. *Brittin.*
- 240 Bases of Oral Communication** U 3  
(580) *Su, A, W, Sp. 3 cl.*  
A study of the theories of the production and perception of speech. *Stromata.*
- 245 Principles of Phonetics** U 3  
(585) *Su, A, W, Sp. 3 cl.*  
*Prereq.: 240 recommended.*  
The available descriptions of the sounds of speech and a comparative study of the systems of representing the sounds. *Singh.*
- 250 The Development of Speech and Language in Children** U 3  
(590) *Su, A, W, Sp. 3 cl.*  
The growth of speech and language in children; theories of speech and language development; causes of speech and language aberrations. *Goff.*
- 305 Argumentation and Debate** U 5  
(470) *A, W, Sp. 5 cl.*  
*Prereq.: 105.*  
Principles of reasoned discourse and their application to controversial issues. *Rieke and Lawson.*
- 315 Informative Communication** U 3  
*A, W, Sp. 3 cl.*  
Analysis of potentials and limitations of informative communications for individuals and groups as communicators or communicators; processes and functions of informative communications in diverse situations. *Douglas.*
- 325 Freedom, Interdependence, and Responsibility in Communication** U 3  
*A, W, Sp. 3 cl.*  
Freedom, interdependence, and responsibility in communication: history and analysis of dominant trends, theories, and actions. *Emery.*
- 410 Program Processes in Radio** U 4  
*Su, A, W, Sp. 3 cl.*  
The program functions in radio communication including the planning, production, and direction of programs. *Riley.*
- 420 Symbol Systems and Communication Behavior** U 3  
*Sp. 3 cl.*  
Study of the nature and forms of symbolic behavior; the human uses of symbols, particularly in communication. *Fotheringham.*
- 440 Anatomy and Physiology of the Ear and Vocal Mechanisms** U 5  
(677) *Su, A, Sp. 5 cl.*  
*Prereq.: 240.*  
A study of the organs and systems of the body related to the processes of speech and hearing. *Stromata.*

- 505 Forms of Public Address** U G 5  
(601) Su, A. 5 cl.

The organization, style, and delivery of speeches for special occasions. *Rieke*.

- 510 Program Processes in Television** U G 5  
Su, A, W, Sp. 5 cl.

Creating, planning, producing, and directing of the television program; development of program forms, program sources, programming organization, and program evaluation. *Nielsen*.

### Tests and Measurements in Speech Education

(See Psychol. 512.)

- 515 Organizational Communication** U G 3  
Sp. 3 cl.

A study of the communicator and communication systems in organizations with emphasis on theory, relationships, and objectives. *Brooks*.

- 520 Communication and Social Behavior** U G 3  
Sp. 3 cl.

Communication processes underlying social and cultural pressures on the individual; communication analysis of behavior; techniques of inquiry into forms of symbolic influence. *Monaghan*.

- 525 Broadcasting and Written Messages** U G 4  
A, Sp. 3 cl.

Not open to students with credit for (654) and (764).

Analysis of program types in relation to writing effectiveness; communication significance of content and style elements in television and radio. *Lynch and Monaghan*.

- 540 Introduction to Audiology** U G 5  
(682) Su, A, Sp. 5 cl.

Prereq.: 240, concur. 440.

The study of hearing, both normal and abnormal, with information on the nature, causes, identification, and rehabilitative treatment of persons with hearing disorders. *Brannon*.

- 550 Introduction to Speech Pathology** U G 3  
(694) A, Sp. 3 cl.

Prereq.: 240, 245, and 250.

A study of disorders of speech; information on prevalence, causes, types, and effects. *Moser*.

### The Teaching of Speech in Secondary Schools

(See Ed. 556)

- 611 Advanced Oral Interpretation** U G 3  
Su, Sp. 3 cl.

Prereq.: 221 or graduate standing.

A study of programming non-dramatic literature for communication by groups; novel, short story and verse stressed; laboratory experiences in Readers Theatre and Chamber Theatre. *Brooks and Reynolds*.

- 616 Communication in Decision-Making** U G 5  
A, Sp. 5 cl.

Not open to students with credit for (603) and (610).

Discussion and debate as critical instruments of social decisions; critical analysis and social influence in committee, conference, negotiation, and debate. *Rieke*.

- 621 Theories of Rhetoric** U G 5  
Su, A. 5 cl.

Prereq.: 213 or graduate standing.

Not open to students with credit for (620) and (621).

Reading and detailed study of the theories of principal rhetoricians from ancient to modern times. *Golden*.

- 626 Broadcast Audience Analysis** U G 5  
A, W, Sp. 4 cl.

The role of the audience in broadcasting; listener characteristics and preference in relation to program selection and program purposes. *Monaghan*.

### The Teaching of Dramatics and Oral Interpretation in Secondary Schools

(See Ed. 631)

- 632 Visual Communication: Theories of Speech Reading** U G 3  
(683) Su, W, Sp. 3 cl., 2 1-hr. labs.

Prereq.: 540.

Study of the major theories and procedures for teaching visual communication.

### The Psychology of the Audience

(See Psychol. 633.)

- 636 Principles of Audiometry** U G 3  
(688) Su, W, Sp. 3 cl.

Prereq.: 540.

A study of the techniques of hearing assessment in clinical, educational, industrial, and medical settings. *Brannon*.

- 640 Speech Pathology: Disorders Associated with Physical Anomalies** U G 5  
(695) Su, W. 5 cl.

Prereq.: 440, 550.

Consideration of theories, principles, and procedures for appraisal and treatment of deviant voice and articulation that accompanies cleft palate, cerebral palsy, maxillofacial injuries, and other physical disabilities.

- 644 Theories of Language Development of the Deaf** U G 3  
(689) A. 3 cl.

Prereq.: 250, Psychol. 570.

Study of the communicative processes of acoustically handicapped individuals: symbolization, meaning, syntax.

- 648 The Pre-School Deaf Child** U G 3  
(690) Su. 3 cl.

Prereq.: 250, Ed. 611, 650.

Study of the problems of communication of the deaf child. *Brannon*.



**652 Stuttering: Theories and Therapies U G 5**(696) *Sp. 5 cl.**Prereq.: 550 and 10 cr. hrs. in Psychol.*

Theories, principles, and procedures for the appraisal and treatment of persons with dysfluencies in speech. *Irwin.*

**656 Principles and Procedures for Appraisal and Treatment in Speech Pathology U G 5**(697) *Su, W. 5 cl.**Prereq.: 135 and 550.*

Principles and procedures in the appraisal and treatment of speech disorders with emphasis on vocal and articulatory deviations not associated with physical disabilities. *Irwin.*

**Behavioral Aspects of Language Disabilities**

(See Ed. 663)

**The Psychology of Speech**

(See Psychol. 670.)

**693 Individual Studies in Speech U G 1-5**(700) *Su, A, W, Sp.**Prereq.: Permission of instructor.**Repeatable to a maximum of 15 cr. hrs.*

Conference, library, and laboratory work.

**705 Principles of Rhetorical Criticism U G 3***Su, W. 3 cl.**Not open to students with credit for (629) and (624).*

Principles, functions, and methods of rhetorical criticism as it relates to public address. *Golden.*

**715 Broadcasting and the Public Interest U G 3***Sp. 3 cl.*

Communication significance of "public interest" concept in broadcasting; effect on program standards, self-regulation, government regulation. *Emery.*

**725 Creative Television Production and Direction U G 3**(766) *Sp. 3 cl., 1 3-hr. lab.**Repeatable to a maximum of 6 cr. hrs.*

Advanced theories of television production and direction; evaluation of program forms; creation and production of experimental programs under broadcast conditions. *Lynch.*

**735 Hearing Aids and Auditory Training U G 3**(775) *W. 3 cl.**Prereq.: 540, 636.*

Operational principles of individual and group amplification systems for those with hearing impairments. *Stromata.*

**745 Theories of Speech Development of the Deaf U G 3**(693) *W. 3 cl.**Prereq.: 240, 245, 644.*

Study of the development of speech under conditions of minimum auditory stimulation and acoustic feedback.

**755 Beginning Practicum in Speech and Hearing U G 3**(698) *Su, A, W, Sp. 2 cl., 7 1-hr. labs.**Repeatable to a maximum of 12 cr. hrs.*

a. Speech Pathology

*Prereq.: 648.*

b. Audiology

*Prereq.: 632, 636.*

c. Language Disorders in Children

*Prereq.: 250, 644.*

Supervised practice in appraisal and treatment with emphasis on:

a. Vocal and articulatory disorders.

b. Hearing disabilities.

c. Language disabilities of children.

*Moser.***777 Teaching of American Speech to Speakers of Other Languages I U G 3***W. 3 cl., 2 lab. hrs.**Concur.: Engl. 777.*

Approaches to teaching American speech and special study of the perception and motor production of the acoustic patterns of English. (TESOL Program).

**778 Teaching of American Speech to Speakers of Other Languages II U G 3***Sp. 1 cl., 4 lab. hrs.**Prereq.: 777; Concur. Engl. 778.*

Techniques for improving listening and speaking skills of speakers of other languages learning American English. Development of materials and use of audio laboratories. (TESOL Program.)

**783 Honors Course U 3-15***Su, A, W, Sp.*

*Prereq.: 4th yr. standing, with a grade of "A" in at least half of his Speech courses and an average of "B" in the remainder of his courses, and permission of professor under whose supervision the work is to be completed and the Honors Committee of the College.*

*Repeatable to a maximum of 15 cr. hrs.*

A program of independent study for the student with special aptitudes; individual conferences and reports.

**794 Special Group Studies in Speech U G 3-5***Su, A, W, Sp.**Prereq.: Permission of instructor.**Repeatable to a maximum of 20 cr. hrs.***801 Aesthetics of Broadcast Communication G 3***W. 3 cl.*

Aesthetic and creative processes in program evaluation; theories of response to artistic elements of style, content, and treatment. *Lynch.*

**806 Advanced Studies in Television and Radio G 3-5***A, W, Sp.**Repeatable to a maximum of 20 cr. hrs.*

a. The literature of Broadcasting. *A. Lynch.*

b. Educational or Public Broadcasting. *W. Lynch.*

c. Research Methods in Broadcasting. *Sp. Monaghan.*

**811 Seminar in History and Criticism of Public Address G 3-5**(820) *Su, A, W, Sp. 2 2-hr. cl.**Repeatable to a maximum of 40 cr. hrs.*

- a. The Rhetoric of Politics in the 1960's. *Su (1st term). Golden.*
- b. 1968 Campaign Rhetoric. *A. Golden.*
- c. Legal Rhetoric to the Concept of Human Freedom. *W. Rieke.*
- d. Contemporary Rhetoric of Dissent. *Sp. Lawson.*

**816 Seminar in Rhetorical Theory G 3-5***Su, A, W, Sp. 2 2-hr. cl.**Repeatable to a maximum of 15 cr. hrs.*

- a. Classical Rhetorical Theory. *Su (1st term). Lawson.*
- b. Contemporary Rhetorical Theory. *A.*
- c. Classical Rhetorical Theory. *W. Lawson.*
- d. British Rhetorical Theory. *Sp. Golden.*

**821 Seminar in Television and Radio G 3-5**(860) *Su, A, W, Sp. 3-4 cl.**Repeatable to a maximum of 40 cr. hrs.*

- a. The History and Development of Drama in American T.V. *Su (1st term). Riley.*
- b. Political Broadcasting in the United States. *Su (2nd term). Lynch.*
- c. Fairness Doctrine and Controversy in Broadcasting. *Su (2nd term). Mall.*
- d. Presidential Power and Broadcasting. *A. Lynch.*
- e. Comparative Studies in National Broadcasting. *A. Emery.*
- f. Small Group Processes in Mass Communications. *W. Monaghan.*
- g. Comparative Studies in International Broadcasting. *W. Emery.*
- h. Film in American Television. *Sp. Lynch.*
- i. Broadcast Critics and Criticism. *Sp. Riley.*

**826 Seminars in Communication Behavior G 3-5**(881) *Su, A, W, Sp. 2 2-hr. cl.**Repeatable to a maximum of 40 cr. hrs.*

- a. Applied Semantics. *Su (2nd term). Brooks.*
- b. Cross Cultural Communication. *A. Knower.*
- c. Contemporary Persuasion Theory. *W. Fotheringham.*
- d. Symbolic Processes. *Sp. Douglas.*

**832 Experimental Phonetics G 5**(778) *Sp. 3 cl., 2 2-hr. labs.**Prereq.: 245, 856, or permission of instructor.*

A study of experimental investigations of acoustic, physiological, and psychological aspects of speech and related laboratory experiments. *Black.*

**836 Disorders of Communication Associated with Neuropathologies G 5***Su. 5 cl.*

Study of the nature, diagnosis, prognosis, and treatment of speech manifestation in dysarthria and aphasia.

**840 Curricular and Instructional Adjustment for the Deaf Child G 3**(781) *Sp. 3 cl.**Prereq.: 648, Ed. 755.*

Laboratory projects directed toward the development of language, silent reading, lip-reading among deaf children.

**844 Advanced Practicum in Speech and Hearing G 3-15**(785) *Su, A, W, Sp. 1 cl., 3 clinical hrs. for each hour of credit per week.*

*Each practicum 1-2 hrs. per qtr., repeatable to a maximum of 6 cr. hrs.*

*Include letter with number on schedule card.*

- a. Speech Pathology  
*Prereq.: 755 a. and when appropriate 640, 836, and 844 c. or permission of instructor.*
- b. Audiology  
*Prereq.: 755 b, 682.*
- c. Language  
*Prereq.: 250, 755a.*

a. Speech disorders associated with structural disorders, or with neuropathologies, stuttering, articulation, voice and foreign accent. b. Aural rehabilitation, diagnostic audiology, speechreading, and auditory training of the acoustically impaired individual. c. Language disorders in children, including aphasia and deafness.

Each practicum for any specific disorder must be preceded by or taken concurrently with didactic study of evaluative and therapeutic procedures appropriate to the disorder. *Moser.*

**848 Interdisciplinary Functioning in Disorders of Oral Communication G 3**(877) *Su, W. 4 cl.**Prereq.: 640, 886, 844.*

The diagnosis and treatment of profound speech and hearing disorders and the joint rehabilitation treatment accorded pathological ear and vocal mechanisms by ancillary disciplines. *Schlanger.*

**852 Advanced Study of American Phonetics G 3-5**(617) *Su. 3 cl., 2 2-hr. labs.**Prereq.: 245.*

Comparative phonetics, dialects and other variations of American Speech; lecture, field work, and spectrography.

**856 Speech and Hearing G 5**(678) *W. 5 cl.**Prereq.: 540 or equiv. and Physics 501.*

Theoretical concepts and physiological and psychophysical data relative to hearing with particular reference to the preception of speech. *Black.*

**Seminars in Education***(See Ed. 395.09)***899 Interdepartmental Seminar***Su, A, W, Sp.**(See Interdepartmental Seminars)***940 Advanced Studies in Speech and Hearing Science G 3-5***Su, A, W, Sp.**Repeatable to a maximum of 45 cr. hrs.*

- a. The Design of Experiments in Speech and Hearing. *A. Black.*



- b. Communication Problems of the Mentally Retarded. *A.*
- c. Instrumentation for Speech and Hearing. *W. Stromste.*
- d. Clinical Approach to Persons with Speech and Vocal Disorders. *Sp. Irwin.*
- e. Advanced Audiometry. *Sp. Brannon.*
- f. Disorders of Voice. *Su (1st term). Moser.*
- g. Studies in Vocalizations of Infants. *Su (2nd term). Goff*

## Surgery

Office: N-747 University Hospital, 410 West Tenth Avenue

Professors Robert Zollinger (Chairman), Andrews, Clatworthy, Curtiss, Hamelberg, Hardyman, Hunt, James, Jesseph, Klassen, S. Roberts, Sirak, Wilson, Winter, and Richard Zollinger; Associate Professors Boles, Collins, Endahl, Garvin, Heydinger, Lenahan, Marable, Meagher, Meckstroth, Morse, Pace, Patton, Sayers, B. Smith, Stetson, J. Taylor, Vasko, and Wiltberger; Assistant Professors Arnold, Baber, Barnes, Berggren, Bingham, Bonta, Buckles, Cerilli, Coleman, Cumberbatch, Dawson, Duran, Eyring, Furste, Fusco, Gauthier, Harding, Hennesen, Ireton, Keith, Kilman, Kinsey, Kirk, Knisely, Lacey, Lewis, Miller, Nick, Plecha, Puppel, Randall, Rauch, J. Roberts, Secrest, F. Smith, J. Smith, P. Smith, W. Stewart, Stoner, Tetirick, Thomford, Welch, and Zox; Instructor Dorfman.

### 950 Seminar in Speech and Hearing Science G 1-5

(880) *Su, A, W, Sp.*

Repeatable to a maximum of 45 cr. hrs.

- a. Basic Areas of Speech Pathology and Audiology: Acoustic Spectrography. *Black.*
- b. Language Disorders: Language Disorders in Children. *A. Brannon.*
- c. Speech Pathology: Management and Supervision. *Goff.*
- d. Audiology: Pediatric Audiometry and Central Auditory Dysfunction. *W. Brannon.*
- e. Speech Pathology: Supervision and Direction of Programs in Speech Pathology. *W. Irwin.*
- f. Speech Pathology: Therapy Procedures with Mentally Retarded Children.
- g. Basic Areas of Speech Pathology and Audiology: Information Theory as Related to Speech and Hearing. *A. Black.*
- h. Speech Pathology: Counseling. *Su. Irwin.*
- i. Speech Pathology: Psychogenic Disorders of Speech. *Sp. Irwin.*
- j. Language Disorders. Language Disorders in Children. *A. Brannon.*

### 990 Areas and Techniques of Research in Speech G 3

(705) *Su, A. 3 cl.*

Prereq.: 25 cr. hrs. in Speech.

A review and critical commentary on typical methods of research in each of the principal areas of graduate research in speech. Research reports. *Knower.*

### 994 Special Group Studies in Speech G 3-5

*Su, A, W, Sp.*

Prereq.: Permission of instructor.

Repeatable to a maximum of 20 cr. hrs.

### 999 Research in Speech G Arr.

(950) *Su, A, W, Sp.*

Research for thesis or dissertation purposes only.

### The Comprehensive Evaluation of the Patient

(See Med. 601, 602, 603.)

[Offered in cooperation with the Departments of Med., Ob. Gyn., Ophthal., Otol., Ped., Phys. Med., Prev. Med., Psychiatry, and Radiol.]

[Instruction in the evaluation of the surgical aspect of patient care, as it relates to total care, by lectures, demonstrations and bedside rounds.]

### 715 Clinical Surgery P 6, 12

*July, Sept., Nov., Jan., Mar., and May.*

Prereq.: Med. 3rd yr. standing.

The student serves as clinical clerk both in inpatient and outpatient departments on the General Surgical Services, with instruction in total patient care.

### 736 Clinical Surgery P 5, 6, or 11

*Offered starting July, Sept., Nov., Jan., and Mar.*

Prereq.: Med. 4th yr. standing; concur. 737 when registration is for 5 or 11 cr. hrs.

Must repeat to 11 cr. hrs.

Total inpatient and outpatient management of surgical disease; emergency room, orthopaedics, neurosurgery, thoracic surgery, plastic surgery, urology and general surgery.

### 737 Clinical Surgery (Anesthesiology) P 1

*Offered concurrently with 736; 16 cl. hrs.*

Prereq.: Med. 4th yr. standing; concur. 5 or 11 cr. hrs. 736.

Didactic instruction, demonstration, and clinical observation of anesthetic agents and techniques, covering fundamentals of cardiopulmonary resuscitation, use of local anesthetic agents, inhalation therapy, pre-medication and anesthetic agents and techniques. *Hamelberg.*

### 760 Research in Orthopaedic Surgery P 6, 12, or 18

*3 months, offered July, Nov., Mar.*

Prereq.: 715.

Must repeat to 18 cr. hrs.

Investigation in musculo-skeletal problems; laboratory investigation of locomotor system, including mineral metabolism, surgical implantations, cartilage and bone metabolism and related fields. *Curtiss and Staff.*

**793 Individual Studies in Surgery**

1, 2, 3, or 4 months. P  
 Su, A, W, Sp. G 3-5

Prereq.: Permission of instructor.

Repeatable to a maximum of 15 cr. hrs. for graduate credit.

793.01 Anesthesia Research P 6, 12, or 18  
 4 months, offered July, October.

Must repeat to 24 cr. hrs. for professional credit.

793.02 General Surgery P 6, 12  
 1 or 2 months; offered all months except June.

Repeatable to a maximum of 12 cr. hrs. for professional credit.

793.03 Neurosurgery P 6 or 12  
 2 months, offered all months.

Must repeat to 12 cr. hrs. for professional credit.

793.04 Orthopaedics Basic Clinical P 6  
 1 month, 3rd yr. standing, offered Sept., Nov., Jan., and March.  
 1 month, 4th yr. standing, offered Sept., Jan., and May.

793.05 Pediatric Surgery P 6, 12  
 1 or 2 months; offered all months.  
 Repeatable to a maximum of 12 cr. hrs. for professional credit.

793.06 Urology P 6, 12  
 1 or 2 months; offered all months.  
 Repeatable to a maximum of 12 cr. hrs. for professional credit.

793.07 Orthopaedics-Advanced Clinical P 6, 12  
 2 months, 3rd yr. standing, offered Sept., Nov., Jan., and March.  
 2 months, 4th yr. standing, offered July, Nov., and March.  
 Repeatable to a maximum of 12 cr. hrs. for professional credit.

793.08 Plastic and Reconstructive Surgery P 6, 12, 18  
 1, 2, 3 or 4 months; offered all months.  
 Repeatable to a maximum of 24 cr. hrs. for professional credit.

**794 Group Studies in Surgery**

1, 2, 3 months.

Prereq.: 715, 736.

794.01 Anesthesia P 6  
 1 month, offered all months.

794.04 Emergency Room P 6  
 1 month, offered all months except June.

794.05 Neurosurgery P 6  
 1 month, offered all months except June.

794.06 Orthopaedic P 6  
 1 month, offered all months except June.

794.07 Pediatric Surgery P 6  
 1 month, offered all months.

794.08 Pediatric Surgery, Preceptorship P 6 or 12  
 2 months, offered all months.  
 Must repeat to 12 cr. hrs.

794.09 Plastic Surgery P 6, 12, 18  
 1, 2, or 3 months; offered all months except July and Oct.  
 Repeatable to a maximum of 18 cr. hrs.

794.10 Surgical Laboratory P 6, 12, 18  
 University Hospitals or Children's Hospital, 1, 2, or 3 months; offered all months.  
 Repeatable to a maximum of 18 cr. hrs.

794.11 Thoracic Surgery P 6  
 1 month, offered all months except June.

794.12 Thoracic Surgery-Cardiovascular P 6  
 1 month, offered all months except June.

794.13 Urology P 6  
 1 month, offered all months except June.

**798 Internship in Surgery P 18**

Su, A, W, Sp.

Prereq.: Appointment as Intern, University Hospital.

Repeatable to a maximum of 72 cr. hrs.

Broad exposure to surgical principles and practices one-half general surgery, one-half surgical specialties; experience in operating rooms, wards, and emergency room; rounds, conferences.

**799 Residency in Surgery P 18**

Su, A, W, Sp.

12 months full time, beginning July 1.

Prereq.: Appointment as Resident, University Hospital.

Repeatable to a maximum of 360 cr. hrs.

Rotation through general surgery and surgical sub-specialties; rounds, conferences.

**850 Seminar in Surgery G 3 or 5**

(900) Su, A, W, Sp.

Group and individual discussions of current surgical problems and their management; discussions of basic and applied topics. Zollinger and Staff.

**999 Research in Surgery G Arr.**

(950) Su, A, W, Sp.

Research for thesis purposes only.

**Theatre**

Office: 205 Derby Hall, 154 North Oval Drive

Professors Bowen (Chairman), Lewis and McDowell; Associate Professors Crepeau, Morrow, Ritter, and Schreck (Emeritus); Assistant Professors Cobes and Glancy; Lecturer Spanabel; Instructor Ayers.

**165 Introduction to Theatre U 5**

Su, A, W, Sp. 4 cl.

Not open to students with credit for Speech 165 or (430).

A study of the theatre with emphasis upon its cultural and social influences in our society. Crepeau, Bowen, Glancy, and Ritter.

**265 Theatre Co-Curricular Activities U 1**

Su, A, W, Sp.

Do not register for this course without written permission of instructor.

Repeatable to a maximum of 6 cr. hrs. including cr. hrs. in Speech (B) and Speech 265.

Emery.



- 270 Stage Crafts** U 5  
*Su, A, W, Sp. 4 cl., 1 3-hr. lab.*  
*Not open to students with credit for Speech 270 or (541).*  
 Basic aspects of scenery construction, rigging, stage lighting, and sound effects, and their integration. *Cobes and Emery.*
- 275 Art of the Theatre** U 3  
*Su, A, Sp. 3 cl.*  
*Not open to students with credit for Speech 275.*  
 Nature of theatre art; relationships between playwright, audience, actor, designer, and director; forms and styles of production. *Ritter.*
- 280 Acting Fundamentals** U 3  
*Su, A, W, Sp. 2 2-hr. cl.*  
*Not open to students with credit for Speech 280 or (521).*  
 The actor's resources and methods, basic body movement, and vocal interpretation.
- 285 Great Ages of the Theatre** U 5  
*A, Sp. 5 cl.*  
*Not open to students with credit for Speech 285.*  
 Concepts and characteristics of the great periods of the theatre of the Western World. *Morrow.*
- 365 Stage Arts I** U 5  
*W, Sp. 2 2-hr. cl., 1 3-hr. lab.*  
*Not open to students with credit for Speech 365 or (522).*  
 Techniques of play analysis, interpretation, composition, movement, rhythm, and tempo; their integration in acting and direction. *Ritter.*
- 366 Stage Arts II** U 5  
*A, W. 3 cl., 1 2-hr. lab.*  
*Not open to students with credit for Speech 465.*  
 Basic principles of stage pictorial and architectonic design; history and technique of stage and costume design. *Emery and J. Spanabel.*
- 565 Children's Theatre: Production and Direction** U G 5  
*Su, A, W. 5 cl.*  
*Prereq.: 270.*  
*Not open to students with credit for Speech 565 or (743).*  
 Selection, production, and direction of plays for children. *Lewis.*
- 671 History of the Theatre** U G 3  
*A. 3 cl.*  
*Prereq.: Engl. 220 or 262, Engl. 649 recommended.*  
*Not open to students with credit for Speech (631) or 671.*  
 Greek, Roman, Medieval and *Commedia dell'arte* Theatre. *McDowell.*
- 672 History of the Theatre** U G 3  
*Sp. 3 cl.*  
*Prereq.: Engl. 220 or 262, Engl. 649 recommended.*  
*Not open to students with credit for Speech (632) or 672.*  
 Renaissance, Elizabethan, and Restoration Theatre. *McDowell.*
- 673 History of the Theatre** U G 3  
*Su, W. 3 cl.*  
*Prereq.: Engl. 220 or 262, Engl. 649 recommended.*  
*Not open to students with credit for Speech (633) or 673.*  
 Eighteenth, Nineteenth, and Twentieth-Century Continental, English, and American Theatre. *McDowell and Morrow.*
- 693 Individual Studies in Theatre** U G 1-5  
*Su, A, W, Sp.*  
*Prereq.: Permission of instructor.*  
*Repeatable to a maximum of 20 cr. hrs.*  
 Conference, library, and laboratory work.  
 a. History of Costume for the Stage. *Su. J. Spanabel.*  
 b. Stage Management. *A. Cobes.*  
 c. Stage Direction. *A. Glancy.*  
 d. Drawing for the Stage. *A. Emery.*  
 e. History of Costume for the Stage. *A. J. Spanabel.*  
 f. Scenic Design. *W. Emery.*  
 g. Acting in Period Drama. *W. Glancy.*  
 k. Stage Make-up. *Sp. J. Spanabel.*  
 l. Stage Lighting. *Sp. Cobes.*
- 770 Modern Theatre Styles** U G 3  
*A. 3 cl.*  
*Prereq.: Engl. 649 or equiv.*  
*Not open to students with credit for Speech (651) or 770.*  
 Realistic and non-realistic styles in the modern theatre. *Glancy and Morrow.*
- 780 Advanced Acting Theory** U G 3  
*Su, W. 2 2-hr. cl.*  
*Prereq.: (522) or equiv.*  
*Not open to students with credit for Speech (626) or 780.*  
 A study of the major theories of the art of acting and their application. *Bowen.*
- 794 Special Group Studies in Theatre** U G 3-5  
*Su, A, W, Sp.*  
*Prereq.: Permission of instructor.*  
*Repeatable to a maximum of 20 cr. hrs.*  
 a. Stage Costume Design. *Sp. J. Spanabel.*  
 b. Technical Production. *W. Cobes.*  
 c. Stage Costume Construction. *W. J. Spanabel.*  
 d. Scenic Design in Staging Styles. *Sp. Cobes.*
- 865 Advanced Theatre Direction** G 5  
*Su, Sp. 3 2-hr. cl.*  
*Prereq.: (646).*  
*Not open to students with credit for Speech (745) or 865.*  
 Principles and techniques of direction and integration of technical elements in the educational theatre. *Bowen.*
- 870 Bibliography and Methods of Research in Theatre** G 3  
*A. 2 cl.*  
*Not open to students with credit for Speech 870.*  
 A course for the advanced graduate student in the methods and tools of research in all areas of theatre. *Morrow.*

- 875 Theatrical Criticism** G 5  
*Sp. 5 cl.*  
*Prereq. or concur.: one of the following: Engl. 520, or 624, or 649.*  
*Not open to students with credit for Speech (735) or 875.*

Critical theories from the Greek to the modern period with particular reference to the influence of the theorists, church, state, and press. *McDowell.*

- 880 Advanced Studies in Theatre** G 3-5  
*Su, A, W, Sp.*  
*Repeatable to a maximum of 40 cr. hrs. including cr. hrs. in Speech 880.*  
 a. New Directions for Educational Theatre: Secondary and College. *Su. Crepeau.*  
 b. Classical Critical Theories of the Theatre. *Su, W. Glancy.*  
 d. The Theatre as an Instrument of Dissent. *W. Crepeau.*  
 f. Children's Theatre. *Sp. Lewis.*  
 g. Experimental Theatre: 1950-1969. *Sp. Bowen.*

- 970 Seminar in Theatre** G 2-5  
*Su, A, W, Sp.*  
*Repeatable to a maximum of 40 cr. hrs. including cr. hrs. in Speech (840) and Speech 970.*  
 a. Advanced Studies in Theatre History. *Su, A. McDowell.*  
 b. Research Problems in Theatre. *Su. Morrow.*  
 d. Development of Dramatic Art: Classic to Renaissance. *A. Ritter.*  
 e. Contemporary Trends in Drama. *W. Morrow.*  
 f. Development of Dramatic Art: 17th and 18th Centuries. *W. Ritter.*  
 g. Development of Dramatic Art: 19th and 20th Centuries. *Sp. Ritter.*  
 h. International University Theatre Survey. *Sp. Crepeau.*  
 j. Modern Critical Theories of the Theatre. *Sp. Morrow.*  
 k. The Future of the Musical in the Theatre. *A. Crepeau.*

- 994 Special Group Studies in Theatre** G 3-5  
*Su, A, W, Sp.*  
*Prereq.: Permission of instructor.*  
*Repeatable to a maximum of 20 cr. hrs.*

- 999 Research in Theatre** G Arr.  
*Su, A, W, Sp.*  
 Research for thesis or dissertation purposes only.

## Veterinary Anatomy

Office: 102-A Sisson Hall, 1900 Coffey Road

Professors Venzke (Chairman) and Diesem; Associate Professor Andres; Instructors Hunter and Latshaw.

- 100 Veterinary Anatomy** U 5  
*(451) A. 5 cl.*  
*Prereq.: Zool. 101 or equiv.*  
*Not open to Vet. Med. Students.*  
 Lectures and demonstration on specimens from the various anatomical systems of domestic animals.

- 410 Anatomy of Domestic Animals** P 7  
*(610) A. 4 cl., 8 lab. hrs.*  
*Prereq.: Vet. Med. 1st yr. standing.*  
 The morphology of the cow, sheep, and goat. *Diesem, Venzke, and Hunter.*

- 411 Anatomy of Domestic Animals** P 7  
*(611) W. 4 cl., 8 lab. hrs.*  
*Prereq.: Vet. Med. 1st yr. standing and 410.*  
 The morphology of the horse, pig, and fowl. *Diesem, Venzke, and Hunter.*

- 420 Veterinary Embryology** P 4  
*(618) A. 3 cl., 4 lab. hrs.*  
*Prereq.: Vet. Med. 1st yr. standing.*  
 The developmental anatomy of the chick, pig, cat, and dog. *Venzke, Andres, and Latshaw.*

- 430 Veterinary Histology** P 4  
*(616) W. 3 cl., 4 lab. hrs.*  
*Prereq.: Vet. Med. 1st yr. standing.*  
 The microscopic structure of the cell and fundamental tissues. *Andres and Latshaw.*

- 431 Veterinary Histology** P 4  
*(617) Sp. 3 cl., 4 lab. hrs.*  
*Prereq.: Vet. Med. 1st yr. standing and 430.*  
 The microscopic structure of organs. *Andres, Venzke, and Latshaw.*

- 510 Surgical Anatomy** P 5  
*(620) Sp. 2 cl., 6 lab. hrs.*  
*Prereq.: Vet. Med. 2nd yr. standing.*  
 A thorough dissection of the dog and lecture-demonstrations on areas of special surgical significance in other animals. *Diesem.*

- 601 Veterinary Endocrinology** P G 3-5  
*(755) Su, A, W, Sp. 3 cl., 4 lab. hrs.*  
*Prereq.: Vet. Physiol. 531 or equiv.*  
 Special consideration is given to the correlation of the endocrine control of cellular metabolism. *Venzke.*

- 693 Individual Studies** P G 2-5  
*(701) Su, A, W, Sp. 1 cl., 6-15 lab. hrs.*  
*Prereq.: 420, 431.*  
 Training in laboratory investigation of special problems. *Venzke, Diesem, and Andres.*

- 700 The Nervous System of Domestic Animals** P G 3  
*W. 2 cl., 2 lab. hrs.*  
*Prereq.: 410, 411, 510. Anat. 817 or equiv.*

Gross and microscopic anatomy of the nervous system of domestic mammals and fowl; detailed topography of the nuclei and tracts of the central nervous system; functional correlation. *Diesem and Andres.*

- 801 Anatomical Technics** G 2-5  
*(751) Su, A, W. 1 cl., 6-15 lab. hrs.*  
*Prereq.: 411, 431 or equiv. and permission of instructor.*  
*Repeatable to a maximum of 15 cr. hrs.*



Theory and practice of macroscopic and microscopic methods, including specimen preparation for dissection, fixing, imbedding, sectioning, mounting, and staining of animal tissue. *Diesem, Venzke, and Andrea.*

#### 810 Anatomy of Laboratory Animals G 3-5 Sp. 3-5 cl., 2 hrs. each.

*Prereq.: 420, 510; Vet. Physiol. 411; Vet. Path. 512 or equiv. and permission of instructor.*

*Open by special permission to students who have not specialized in Vet. Med.*

Anatomy of laboratory animals including primates, rodents and avian species; emphasis on application of anatomy to surgical procedures and research techniques. *Diesem.*

#### 999 Research in Veterinary Anatomy G Arr.

(950) Su, A, W, Sp.

Research for thesis or dissertation purposes only.

For participation in Clinical Instruction, see courses offered under Veterinary Clinics.

## Veterinary Clinics

Office: 1009 Veterinary Hospital, 2578 Kenny Road  
Tharp (Director) and Rudy (Associate Director).

#### 510 Veterinary Clinics P 3

(781) A, W, Sp. 7 2-hr. lab.

(782) *Prereq.: Vet. Med. 3rd yr. standing.*

(783) Repeatable to a maximum of 9 cr. hrs.

Training in clinical procedures.

#### 511 Veterinary Clinics P 6

(784) Su. 7 24-hr. lab. duty, 1 cl.

*Prereq.: Vet. Med. 4th yr. standing and 510.*

Intense training in clinical work for one term.

#### 512 Veterinary Clinics P 15

(785) A, W, Sp. 7 24-hr. lab. duty, 1 cl.

*Prereq.: Vet. Med. 4th yr. standing and 511; 2 qtrs. required.*

Training in clinical procedures, case work, and hospital management.

## Veterinary Medicine

Office: 1009 Veterinary Hospital, 2578 Kenny Road

Professors Tharp (Chairman), Donham, Donovan, Wearly, Whiteus, and Venzke; Associate Professors Gardner, Gisler, Loeb, Murdick, and Ray; Assistant Professors Carson, Heider, Martin, Rainier, Stilson, and Wyman; Instructor Smetzer.

#### 510 Physical Diagnosis P 2

(820) Sp. 1 cl., 1 2-hr. lab.

*Prereq.: Vet. Med. 2nd yr. standing.*

The principles, procedures, techniques, and instrumentation used in conducting a thorough physical examination of all the domestic animals. *Wearly, Donovan, Martin, and Rainier.*

#### 520 Diseases of Small Animals P 3

(730) A. 3 cl.

*Prereq.: 510.*

Principles of small animal medicine including infectious, parasitic and nutritional diseases of the canine, feline and avian species. *Donovan, Martin, and Wyman.*

#### 521 Diseases of Small Animals P 3

(731) W. 3 cl.

*Prereq.: 520.*

Principles of small animal medicine including the skin, endocrine, digestive, and uro-genital systems of the canine, feline, and avian species. *Donovan, Martin, and Wyman.*

#### 522 Diseases of Small Animals P 3

(732) Sp. 3 cl.

*Prereq.: 521.*

Principles of small animal medicine including the cardiovascular, respiratory, musculo-skeletal, and nervous systems of the canine, feline, and avian species. *Donovan, Martin, and Wyman.*

#### 530 Diseases of Large Animals P 4

(735) A. 4 cl.

*Prereq.: 510.*

Principles of large animal medicine including management, nutrition and nutritional deficiencies, infections, parasitic, and metabolic diseases of ovine, caprine and equine species. *Wearly, Rainier, Donham, and Gardner.*

#### 531 Diseases of Large Animals P 3

(736) W. 3 cl.

*Prereq.: 530, 532.*

Principles of large animal medicine including management, toxicology, nutrition, and nutritional deficiencies, infectious and parasitic diseases of the porcine species. *Wearly and Rainier.*

#### 532 Diseases of Large Animals P 4

(740) A. 4 cl.

*Prereq.: 510.*

Principles of large animal medicine including management, toxicology, nutrition and nutritional deficiencies, infectious, parasitic and metabolic diseases of the bovine species. *Wearly, Rainier, Murdick, and Donham.*

#### 540 Obstetrics and Genital Diseases P 5

(738) Sp. 5 cl.

*Prereq.: Vet. Med. 3rd yr. standing.*

Lectures and demonstrations in obstetrics, diseases associated with reproduction and artificial insemination of domestic animals. *Tharp and Murdick.*

#### 600 Veterinary Practice P 1

(719) W, Sp. 1 2-hr. cl.

(720) *Prereq.: Vet. Med. 4th yr. standing.*

*Two qtrs. required.*

To acquaint the student with veterinary laws, business practices, opportunities and responsibilities that will be thrust upon him at graduation. *Whiteus.*

#### 610 Ophthalmology P G 3

(750) A, W, Sp. 3 cl.

*Prereq.: 510, 522, Vet. Physiol. and Pharmacol. 530.*

A study of the eye of domestic animals with emphasis upon diagnosis of the eye and the relation of this organ to general diseases. *Donovan and Wyman.*

**620 Laboratory Animal Medicine P G 5**  
A. 3 cl., 3 2-hr. lab.*Prereq.: D. V. M. or permission of instructor.*

A study of the diseases of laboratory animals with emphasis on colony management, diagnosis and treatment. *Gisler.*

**621 Laboratory Animal Medicine P G 5**  
W. 3 cl. 3 2-hr. lab.*Prereq.: 620, D. V. M. or permission of instructor.**Gisler.***693 Individual Studies P G 2-8**  
(701) Su, A, W, Sp.*Prereq.: Vet. Med. 4th yr. standing. Adequate clinical training and permission of instructor.*

Special problems in veterinary medicine. *Wearly, Donovan, Tharp, Murdick, and Whiteus.*

**720 Advanced Internal Medicine P G 3-5**  
A. 3 cl., 6 lab. hrs. (optional).*Prereq.: 522, 531 or equiv. and permission of instructor.*

Special consideration is given to diseases of the various organ systems, and to their pathologic physiology, prophylaxis and therapy without respect to species. *Donovan and Murdick.*

**721 Advanced Internal Medicine P G 3-5**  
W. 3 cl., 6 lab. hrs. (optional).*Prereq.: 522, 531 or equiv. and permission of instructor.*

Special consideration is given to diseases of the various organ systems, and to their pathologic physiology, prophylaxis and therapy without respect to species. *Donovan and Murdick.*

**999 Research in Veterinary Medicine G Arr.**  
(950) Su, A, W, Sp.

Research for thesis or dissertation purposes only.

For participation in Clinical Instruction, see courses offered under Veterinary Clinics.

Lectures and demonstrations on the classification, structure, reproduction, habitat, life history, control and treatment of the arthropods found in domestic animals. *Koutz and Groves.*

**412 Veterinary Parasitology P 3**  
(646) W. 3 cl., 1 2-hr. lab.*Prereq.: Vet. Med. 2nd yr. standing.*

Lecture and demonstrations on the structure, reproduction, habitat, life history, control and treatment of the protozoal parasites found in domestic animals. *Koutz and Groves.*

**610 Advanced Veterinary Parasitology P G 2-5**  
(623) Su, A, W, Sp.*Prereq.: 410, 411, 412 or equiv. and permission of chairman.**Repeatable to a maximum of 15 cr. hrs.*

A review of literature, detailed study of classification, morphology, life histories and economic importance of animal parasites. *Koutz and Groves.*

**693 Individual Studies P G 2-8**  
(701) Su, A, W, Sp.*Prereq.: 410, 411, 412, Vet. Clin. 510, or equiv., and permission of chairman.*

Laboratory and library investigations of special problems concerning animal parasitic diseases. *Koutz and Groves.*

**850 Seminary in Veterinary Parasitology G 1**

(827) A, W, Sp.

*Repeatable to a maximum of 16 cr. hrs.***999 Research in Veterinary Parasitology G Arr.**

(950) Su, A, W, Sp.

Research for thesis or dissertation purposes only.

For participation in Clinical Instruction, see courses offered under Veterinary Clinics.

## Veterinary Parasitology

Office: 304 Sisson Hall, 1900 Coffey Road

Professors Koutz (Chairman) and Groves; Assistant Professor Scothorn.

**410 Veterinary Parasitology P 4**  
(640) Sp. 4 cl., 1 2-hr. lab.*Prereq.: Vet. Med. 1st yr. standing.*

Lectures and demonstrations on the classification, structure, reproduction, habitat, life history, control and treatment of the nematode, cestode and trematode parasites found in domestic animals. *Koutz and Groves.*

**411 Veterinary Parasitology P 3**  
(642) A. 3 cl., 1 2-hr. lab.*Prereq.: Vet. Med. 2nd yr. standing.*

## Veterinary Pathology

Office: 207 Veterinary Pathology, 1925 Coffey Road

Professors Griesemer (Chairman), Cole, Farrell, Fowler, Koestner, and Marsh; Associate Professor Loeb; Assistant Professors Capen, Lamont, McKissick, Rohovsky, and Shaddock; Instructor Long.

**510 General Pathology P 6**  
(621) A. 4 cl., 4 lab. hrs.*Prereq.: Vet. Med. 2nd yr. standing.*

The principles of pathology, including etiology, reaction to injury, course and termination of disease. Emphasis on functional, chemical and morphological alterations in disease. *Koestner and Capen.*

**511 Systemic Pathology P 6**  
(622) W. 4 cl., 4 lab. hrs.*Prereq.: 510.*

Diseases of the nervous, endocrine, cardiovascular, hemic and lymphatic, digestive, respiratory, urinary, genital musculo-skeletal and integumentary systems, and organs of special senses. *Griesemer, Koestner, and McKissick.*



**512 Veterinary Clinical and Systemic Pathology P 6**(733) *Sp. 4 cl., 4 lab. hrs.**Prereq.: 511.*

Correlation of functional, morphological and chemical abnormalities in diseases of domestic and laboratory animals caused by toxic and radioactive materials, nutritional and metabolic disturbances, and infectious agents. *Griesemer, Loeb, and Farrell.*

**610 Avian Pathology P 3**(732) *W. 3 cl.**Prereq.: 512.*

Diseases of chickens, turkeys, caged birds, game birds, and water fowl. *Marsh.*

**625 Pathology Technic P G 2-10**(610) *Su, A, W, Sp.**Prereq.: 512 or equiv. and permission of instructor.*

Theory and application of technical methods employed in modern animal disease research; coordinated approach to animal disease investigation including functional, chemical, gross, and histopathology. *Farrell, Griesemer, and Cole.*

**693 Individual Studies P G 1-10**(701) *Su, A, W, Sp.**Prereq.: 512 or equiv. and permission of instructor.*

Laboratory, library, conference, and reports concerning animal disease problems. *Cole, Farrell, Griesemer, and Koestner.*

**710 Advanced Systemic Pathology P G 2-10**(776) *Su, A, W, Sp.**Prereq.: 512, 625, 693 or equiv., and permission of instructor.*

An advanced study of animal diseases as they affect all organ systems of the body. *Farrell, Koestner, and Griesemer.*

**715 Veterinary Surgical Pathology P G 2-10**(778) *Sp.**Prereq.: 710 and permission of instructor.*

Biopsy methods and diagnosis; surgical specimens are studied, and emphasis is placed upon the correlation of lesions and functional pathology. *Koestner.*

**720 Animal Oncology P G 2-10**(786) *A**Prereq.: 710 and permission of instructor.*

A study of neoplasms occurring in animals, including identification, epidemiology, experimental production, cell culture, transplantation and biological behavior. *Cole and Griesemer.*

**850 Seminar in Veterinary Pathology G 1**(807) *Su, A, W, Sp.**Repeatable to a maximum of 16 cr. hrs.***999 Research in Veterinary Pathology G Arr.**(950) *Su, A, W, Sp.*

Research for thesis or dissertation purposes only.

For participation in Clinical Instruction, see courses offered under Veterinary Clinics.

**Veterinary Physiology and Pharmacology**

Office: 351 Sisson Hall, 1900 Coffey Road

Professors Smith (Chairman) and Redding; Associate Professors Hamlin, Powers, Ray, and Yeary; Assistant Professor Wright.

**210 Animal Physiology U 5**(516) *A. 4 cl., 1 3-hr. lab.**Prereq.: Chem. 102 or 122.**Not open to students with credit for 410 or 411.*

Concepts and principles involved in the function of various body systems and principles of growth and aging will be considered. *Ray and Staff.*

**211 Animal Physiology U 5**(517) *W. 4 cl., 1 3-hr. lab.**Prereq.: Chem. 102 or 122.**Not open to students with credit for 538.*

Comparative study of physiological concepts and principles involved in reproduction and metabolism in various species of domestic animals. *Smith and Staff.*

**530 Physiology of Domestic Animals P G 5**(610) *Sp. 4 cl., 3 lab. hrs.**Prereq.: Vet. Med. 1st yr. standing or permission of instructor.*

Physiology of peripheral nerve, central nervous system, sense organs, blood, lymph, and special fluid systems of the body. *Redding.*

**531 Physiology of Domestic Animals P G 5**(611) *A. 4 cl., 3 lab. hrs.**Prereq.: 530 and Vet. Med. 2nd yr. standing, or permission of instructor.*

Physiology of the cardiovascular and respiratory systems, digestion in the simple stomach and rumen. *Smith, Hamlin, and Ray.*

**532 Physiology of Domestic Animals P G 5**(622) *W. 4 cl., 3 lab. hrs.**Prereq.: 531 and Vet. Med. 2nd yr. standing, or permission of instructor.*

Physiology of digestion metabolism; renal physiology, reproduction, and endocrinology. *Powers and Ray.*

**630 Veterinary Pharmacology P G 5***A. 5 cl.**Prereq.: Vet. Med. 2nd yr. standing or permission of instructor.*

Pharmaceutical standards and preparations, metrology, posology, prescription writing, basic principles of pharmacodynamics, drugs acting on the neuromuscular systems, skin and mucous membranes and digestive tract of domestic animals. *Redding, Powers, and Ray.*

**632 Veterinary Pharmacology P G 4***W. 4 cl.**Prereq.: 630 or permission of instructor.*

Anti-infective drugs; hormones used as drugs, drugs affecting fluid and electrolyte balance and drugs acting on the cardiovascular system of domestic animals. *Powers and Redding.*

**693 Individual Studies P G 3-15**(701) *Su, A, W, Sp.**Prereq.: 532 and 632 or equiv. and permission of instructor.*

Laboratory and library investigations concerning animal physiology and pharmacology problems. *Smith, Redding, Powers, and Hamlin.*

**779 Comparative Mammalian Toxicology P G 5***Sp. 4 cl., 2-hr. lab.**Prereq.: 532, 632 or permission of instructor.*

Principles of comparative mammalian toxicology and their relationships to the safety evaluation of chemical substances. *Yeary.*

**780 Antimicrobial and Endocrine Therapy P G 5***Sp. 3 cl., 2 2-hr. lab.**Prereq.: 532, 632, Microbiol. 613, Biochem. 511, 521; or equiv., Vet. Med. 3rd yr. standing or permission of instructor.*

A detailed study of the basic principles and clinical application of endocrines and antimicrobial drugs in veterinary medicine. *Powers.*

**790 Veterinary Physiology P G 3***A. 2 cl., 2 lab. hrs.**Prereq.: 532 or equiv. in advanced mammalian physiol.*

Comparative electrocardiography. *Hamlin and Smith.*

**791 Veterinary Physiology P G 3***W. 2 cl., 2 lab. hrs.**Prereq.: 532 or equiv. in advanced mammalian physiol.*

Comparative hemodynamics and cardiovascular sound. *Hamlin and Smith.*

**792 Veterinary Physiology P G 3***Sp. 2 cl., 2 lab. hrs.**Prereq.: 532, 791, or equiv. in advanced mammalian physiol.*

Advanced comparative cardiovascular physiology with emphasis upon circulatory response to stress of various congenital and acquired cardiovascular defects. *Hamlin and Smith.*

**799 Seminar P G 2***A, W, Sp. 1 2-hr. conf. and lec.**Prereq.: Permission of instructor.**Repeatable to a maximum of 30 cr. hrs.*

Lectures and conferences on selected topics in veterinary physiology and pharmacology.

**999 Research in Veterinary Physiology and Pharmacology G Arr.**(950) *Su, A, W, Sp.*

Research for thesis or dissertation purposes only.

For participation in Clinical Instruction, see courses offered under Veterinary Clinics.

## Veterinary Preventive Medicine

Office: 252 Sisson Hall, 1900 Coffey Road

Professors Helwig (Chairman), Bohl, Jones, and Tyznik; Associate Professor Kreier; Assistant Professor Buller; Instructors Hockman and Robinson; Lecturers Adams, Drayer, Goldstein, Kramer, Russell, and Wittich.

**200 Basic Animal Hygiene U 3**(452) *A. 3 cl.*

Causes of disease and the relationship of these causes to the animal's environment. *Helwig, Jones, and Buller.*

**201 Applied Animal Hygiene U 3**(453) *W. 3 cl.**Prereq.: 200 or equiv.*

Various common diseases responsible for losses to the livestock industry, with emphasis on control. *Helwig, Jones, and Buller.*

**510 Hygiene and Environmental Sanitation P 3**(620) *A. 3 cl.**Prereq.: Vet. Med. 3rd yr. standing.*

A disease prevention study of the environmental factors which have a direct influence on animal and human health. An introduction to epidemiology and biostatistics. *Helwig, Jones, and Buller.*

**511 Prevention and Control of Communicable Diseases P 3**(745) *W. 3 cl.**Prereq.: Vet. Med. 3rd yr. standing or permission of instructor.*

The prevention of animal communicable diseases based on contemporary medical knowledge is correlated with administrative control and public health. *Helwig and Staff.*

**512 Food Hygiene and Public Health P 4**(742) *Sp. 3 cl., 2 2-hr. lab.**Prereq.: Vet. Med. 3rd yr. standing or permission of instructor.*

Principles and practices of food sanitation with emphasis on the veterinarian's role in protecting the public food supply.

**610 Applied Preventive Medicine P 15**(740) *A, W, Sp. Full time off-campus cl. and lab.*

Intensive practical training: Public Health and Food Hygiene, meat inspection, Federal and State Disease Control Programs, and Herd Disease Management. *Department Staff and Cooperating Governmental Agencies.*

**616 Germfree and Gnotobiotic Animals P G 5**(750) *W, Sp. 3 2-hr. cl. and lab.**Prereq.: Advanced standing in Biological Sciences, Microbiol. 607 or equiv., and permission of instructor.*

The instrumentation of biological research through application of germfree and gnotobiotic animals.

**693 Individual Studies P G 2-5**(701) *Su, A, W, Sp.**Prereq.: 510 and permission of instructor.*

Laboratory and library investigations of animal disease problems involving Veterinary Preventive Medicine. *Helwig and Jones.*



- 785 Biological Research Techniques P G 3**  
 (730) A, W, Sp. 2 2-hr. cl. and lab.  
*Prereq.: Advanced standing in Biological Sciences, Microbiol. 607 or equiv., and permission of instructor.*

The more common laboratory animals used in biological research and testing will be dealt with as they relate to research purposes, design, and application.

- 810 Veterinary Public Health G 3-8**  
 Su, A, W.  
*Prereq.: 610.*

Laboratory and library investigation of veterinary public health problems. *Helwig, Jones, and Russell.*

- 850 Seminar in Veterinary Preventive Medicine G 1**  
 (800) A, W, Sp.  
*Repeatable to a maximum of 3 cr. hrs.*

- 999 Research in Veterinary Preventive Medicine G Arr.**  
 (950) Su, A, W, Sp.

Research for thesis or dissertation purposes only. For participation in Clinical Instruction, see courses offered under Veterinray Clinics.

## Veterinary Surgery and Radiology

Office: 1095 Veterinary Hospital, 2578 Kenny Road  
 Professors Rudy (Chairman) and Johnson; Associate Professors Gabel and Wilson; Assistant Professor Burt and Heath.

- 510 General Surgery P 5**  
 (623) Sp. 4 cl., 2 2-hr. lab.  
*Prereq.: Vet. Med. 2nd yr. standing.*

Lectures, recitations and demonstrations of surgery. *Rudy and Gabel.*

- 520 Veterinary Radiology P 3**  
 (731) A. 2 cl., 2-hr. lab.  
*Prereq.: Vet. Med. 3rd yr. standing.*

Presentation of the principles of diagnostic and therapeutic radiology, including nuclear medicine; laboratory demonstrations include interpretation of radiographs and radiological technique and protection. *Burt.*

- 530 Special Surgery P 6**  
 (732) W. 6 cl.  
*Prereq.: 510, 520.*

Lectures, recitations and demonstrations on the treatment of surgical diseases of all species. *Rudy and Wilson.*

- 531 Special Surgery P 6**  
 (733) Sp. 6 cl.  
*Prereq.: 530.*

Lectures, recitations and demonstrations on the diagnosis and treatment of surgical diseases of large animals, including horses, cattle, sheep, and swine. *Johnson, Gabel, and Heath.*

- 532 Surgical Operations P 1**  
 (741) A, W, Sp. 1 4-hr. lab.  
*Prereq.: 531.*

Surgical exercises.

- 693 Individual Studies P G 1-5**  
 (701) Su, A, W, Sp.  
*Prereq.: Vet. Med. 4th yr. standing.*

Laboratory and library investigations of diseases requiring advanced surgery and radiology techniques.

- 999 Research in Veterinary Surgery or Veterinary Radiology G Arr.**  
 (950) Su, A, W, Sp.

Research for thesis or dissertation purposes only. For participation in Clinical Instruction, see courses offered under Veterinary Clinics.

## Welding Engineering

Office: 128 Industrial Engineering Building, 190 West 19th Avenue

Professors McCauley (Chairman) and Green; Regents' Professor McMaster; Associate Professors Funk and Jackson; Instructor and Lecturers.

- 240 Forging, Heat Treating, and Welding U 3**  
 (415) A, W, Sp. 3 cl., 3 1-hr. lab.

*Not open to students with credit for (418).*

*Safety glasses must be worn in laboratory.*

Welding fundamentals and applications; intended for students not having an engineering background; laboratory work designed to augment classroom discussions and provide basic welding skills.

- 401 Introduction to Welding Engineering U 4**  
 A. 3 cl., 1 3-hr. lab.

*Prereq.: 3rd yr. standing or permission of instructor.*

*Safety glasses must be worn in laboratory.*

An introduction to welding engineering for undergraduate students to familiarize them with the broad field of welding engineering and particularly welding processes. *Jackson.*

- 430 Applied Engineering Analysis U 4**  
 (610) A. 3 cl., 1 3-hr. lab.  
*Prereq.: Physics 233 and Math. 255.*

The analysis of engineering systems by the application of fundamental principles of conservation of matter and energy, and operational techniques. *McMaster.*

- 488 Welding Engineering Inspection U 2 Trip**

(640) Sp. One week between W. and Sp. Qtrs.

*Safety glasses are required.*

A group visit to various industrial plants; the plants selected are generally grouped in one community; a written report is required.

**489 Practical Experience in a Welding Organization U 6**(449) *A. Ten weeks during Su. Qtr.**Prereq.: Weld. E. 3rd yr. standing.*

Experience in an engineering organization and the preparation of an acceptable report on the organization and the work done before beginning the 4th year.

**501 Principles of Welding U G 4**(739) *Sp. 3 cl., 1 3-hr. lab.**Prereq.: 401, 430, Elec. E. 500.**Safety glasses must be worn in laboratory.*

Theory, equipment, techniques, and control of fusion welding with electric arc, gas, and other processes. Welding codes and specifications. Application of electrodes and processes. *Libby.*

**588 Welding Engineering Inspection Trip U 2**(740) *Sp. One week between W. and Sp. Qtrs.**Safety glasses are required.*

A group visit to various industrial plants; the plants selected are generally grouped in one community; a written report is required.

**589 Practical Experience in Welding Industry U 6**(649) *A. Ten weeks during Su. Qtr.**Prereq.: Weld. E. 4th yr. standing.*

Experience in an engineering organization and the preparation of an acceptable report on the organization and the work done before beginning the 5th year.

**602 Principles of Resistance Welding U G 4**(702) *W. 3 cl., 1 3-hr. lab.**Prereq.: 430 and Elec. E. 520.**Safety glasses must be worn in laboratory.*

Theory and operation of resistance welding equipment, power supplies, electronic controls, welding codes and schedules, and process controls. *McMaster.*

**610 Physics of Welding U G 4**(701) *A. 3 cl., 1 3-hr. lab.**Prereq.: Indust. E. 401, Engr. Mech. 521.**Safety glasses must be worn in laboratory.*

The application of basic principles in the welding processes. *McCauley.*

**611 Theory of Welding U G 5**(741) *W. 4 cl., 1 3-hr. lab.**Prereq.: 501, Chem. 533, Met. E. 500.**Safety glasses must be worn in laboratory.*

The application of basic metallurgical principles in the welding processes. The weldability of metals is studied. Laboratory work involves physical and metallographic examination of welded specimens. *Jackson.*

**612 Application of Welding Engineering U G 4**(742) *Sp. 3 cl., 1 3-hr. lab.**Prereq.: 611.**Safety glasses must be worn in laboratory.*

The principles by which manufacturing procedures for materials may be developed; an analysis of processing methods; material, physical and mechanical properties, inspection, performance and service testing. *McCauley.*

**630 Analysis of Continuous Systems U G 3***W. 3 cl.**Prereq.: 430 or permission of instructor.*

An energy analysis of analogous one-dimensional linear distributed systems with applications to welding process and control systems. *McMaster.*

**631 Nondestructive Testing U G 4**(703) *A. 3 cl., 1 3-hr. lab.**Prereq.: Elec. E. 540, Math. 254.**Safety glasses must be worn in laboratory.*

Principles, equipment, techniques, and interpretation of nondestructive tests with X-rays, radioisotopes, magnetic fields, penetrants, ultrasonics, eddy currents, and other probing media. *McMaster.*

**640 Welding Science and Its Application U G 3**(646) *W. 3 cl.**Prereq.: Engr. 4th yr. standing and Engr. Mech. 420.*

A study of the engineering fundamentals of welding; design, materials, and processes are considered as related to the welding field. *Green.*

**680 Continuous Systems Laboratory U G 1***W. 1 3-hr. lab.**Concur.: 630.*

Laboratory exercises in measurement of transients in continuously-distributed linear engineering systems (particularly on advanced welding equipment), and analog computer solutions where feasible.

**704 Theory of High Density Welding Processes U G 3***A. 3 cl.**Prereq.: 501, Physics 551 or 743 or equiv. or permission of instructor.*

Theory of physical and thermal processes in high-pressure arc, plasma, electron beam, laser and other high-energy-density welding processes. *McMaster.*

**705 Principles of Welding Process Control Systems U G 3***Sp. 3 cl.**Prereq.: 430, 501, 602 and Elec. E. 650 or permission of instructor.*

Principles of continuously-variable and digital control systems for manual, mechanized, automatic, and feedback operation of arc, resistance, and advanced welding processes. *McMaster.*

**720 Welding Design U G 4**(743) *A. 3 cl., 1 3-hr. lab.**Prereq.: Civil E. 531.*

The analysis and design of statically determinate and indeterminate members and structures; a study of welding procedures for shop fabrication and field erection. *Green.*

**721 Welding Design U G 4**(744) *W. 3 cl., 1 3-hr. lab.**Prereq.: 612, 720 and Mech. E. 550.*

The analysis and design of machine elements and frames to a given set of shop conditions and facilities; emphasis is placed on cost factor considerations. *Green.*



- 722 Welding Design** U G 4  
(745) Sp. 3 cl., 1 3-hr. lab.  
Prereq.: 602 and 721.

The design of resistance welded products; a selection of process and equipment and a study of tooling used in high production work. *Green.*

- 755 Welding Process Control** U G 1  
**Laboratory**  
Sp. 1 3-hr. lab.  
Concur.: 705.

Laboratory experiments in basic instrumentation and control systems for welding processes such as arc, resistance, electron-beam, and others.

- 784 Special Problems in Welding** U 2-15  
**Engineering**  
(748) Su, A, W, Sp.  
Prereq.: 2nd yr. Professional Division standing and permission of instructor.  
Repeatable to a maximum of 15 cr. hrs.

Special studies not offered in the fixed curriculum in the areas related to courses 501, 602, 610, 611, 612, and 631; this work may be taken in more than one area.

- 799 Thesis** U 2-15  
(754) Su, A, W, Sp.  
Prereq.: 2nd yr. Professional Division standing and permission of instructor.  
Repeatable to a maximum of 15 cr. hrs.

Undergraduate research providing an opportunity to publish a report in appropriate technical publications.

- 884 Advanced Problems in Welding** G 2-6  
**Engineering**  
(841) Su, A, W, Sp.  
Prereq.: Permission of instructor.  
Repeatable to a maximum of 24 cr. hrs.

Special studies not offered in the fixed curriculum. Work may be taken under one or more of the special topics in the field including theory of welding processes and their physical mechanics, weldability of materials, advanced studies in welding design, theory and methodology of non-destructive testing, and fundamental application of welding processes to industrial technology.

- 999 Research in Welding** G Arr.  
**Engineering**  
(950) Su, A, W, Sp.  
Research for thesis or dissertation purposes only.

## Zoology

Office: 101 Botany and Zoology Building, 1735 Neil Avenue

**Professors** Wharton, Myser, Borrer, Crites, Dambach, Giffing, Harvey, Haub, House, Johnson, J. N. Miller, Peterle, Price, Putnam, Rothenbuhler, Tidd, Venard, and Young; **Associate Professors** Britt, P. Colinvau, Giltz, Good, Hubschman, Kessler, Parrish, Plaine, Reese, Shambaugh, Stansbery, and Valentine; **Assistant Professors** Bookhout, Byes, Menefee, Momot, Skavaril, and Tubbs; **Lecturer** Trautman.

- 101 General Zoology** U 5  
(404) A, W, Sp. 2 cl., 3 1-hr. lab.  
Prereq.: Biol. 100.

Not open to students with credit for 401 or 402.

A study of the variety of animals with emphasis on organ systems and their functions, the interrelationships with each other, space, and time. *Haub.*

### Introduction to Ecology

(See Biol. 410.)

- 211 Invertebrate Zoology** U 5  
(658) W. 3 cl., 2 2-hr. labs.  
Prereq.: 101 or equiv.  
Not open to students with credit for 402.

A survey of the invertebrates with emphasis on morphology and relationships of representative types. *Crites.*

- 220 Ornithology** U 5  
(508) Sp. 2 cl., 1 2-hr. lab.  
Prereq.: 101 or equiv. and 10 additional cr. hrs. in biological science.

A study of the general biology and classification of birds, with emphasis on field identification of local species. Field trip each Saturday. *Reese.*

- 231 Functional Anatomy and Physiology I** U 5  
A, W, Sp. 3 cl., 2 2-hr. labs.  
Prereq.: Biol. 100.

The dermal, skeletal, and muscular systems with emphasis on man.

- 232 Functional Anatomy and Physiology II** U 5  
W, Sp. 3 cl., 2 2-hr. labs.  
Prereq.: 231.

The metabolic systems with emphasis on man.

- 233 Functional Anatomy and Physiology III** U 5  
Sp. 3 cl., 2 2-hr. labs.  
Prereq.: 232.

The homeostatic and reproductive systems with emphasis on man.

- 234 Comparative Vertebrate Anatomy** U 5  
Su, A, W, Sp. 3 cl., 2 3-hr. labs.  
Not open to students with credit for Anat. 202.

Comparative anatomy of vertebrates through mammals with reference to modifications of their basic structural plan as illustrated by representative vertebrates. *Giltz.*

**430 Vertebrate Embryology** U 5  
3 cl., 2 3-hr. labs.

Not open to students with credit for Anat. 616.

Embryology of representative amphibia, birds, and lower mammals from fertilization through organogenesis. Price.

**432 General Physiology** U 5  
W. 2 cl., 2 3-hr. labs.

Prereq.: organic chem., Physics 113 or equiv. and 15 cr. hrs. biological science.

A laboratory survey of physiological mechanisms in animals.

**500 Basic Concepts and Recent Advances in Zoology** U G 5

(657) W. 3 2-hr. cl.

Prereq.: High school teacher status and 15 cr. hrs. natural sc. at the 200 level.

Animal functions and genetic and environmental interrelationships in time and space as illustrated by selected animal types. Tidd.

**530 General Histology** U G 5

W. 3 cl., 2 3-hr. labs.

Prereq.: 234 or equiv.

Not open to students with credit for Anat. 607.

A detailed study of the tissues of vertebrate animals, and a general survey of the microscopic structure of various organs. J. N. Miller.

**531 Principles of Physiology** U G 5

Su. 3 cl., 2 2-hr. labs.

Prereq.: Academic Year Science Institute students only.

15 cr. hrs. biological science, 15 cr. hrs. chem., and/or physics and permission of instructor.

The nature and behavior of living organisms and their relationship to their environment with special consideration of the functions of vertebrate organ systems.

**610 Animal Parasites** U G 5

W, Sp. 2 cl., 3 2-hr. labs.

Prereq.: 101 or equiv.

The general principles of parasitology, the morphology, life history, and classification of parasites, and their host relationships. Recommended for students preparing for medical or zoological work. J. N. Miller.

**611†\* Animal Parasitology** U G 4

(631) Su. (2nd term). Franz Theodore Stone Laboratory, 3 all-day cl. per week.

Prereq.: 101 or equiv.

A course emphasizing the parasites infesting freshwater vertebrates, including field and laboratory experiences, host examination, and techniques dealing with staining, fixing, and mounting of specimens.

**612 Invertebrate Zoology** U G 4

(633) Su. (2nd term). Franz Theodore Stone Laboratory, 3 all-day cl. per week.

Prereq.: 101 or equiv.

The collection and identification of invertebrate animals, development of methods of classification, and use of keys.

**620 Zoology of Vertebrates** U G 5

A, Sp. 3 cl., 2 2-hr. labs.

Prereq.: 101 or equiv.

A study of the various vertebrate groups, emphasizing their origin, phylogeny, classification, life histories, habits, distribution, and economic importance. Price.

**621 Ichthyology** U G 4

(624) Su. (1st term). Franz Theodore Stone Laboratory, 3 all-day cl. per week.

Prereq.: 101 or equiv.

Study of the distribution and classification of fishes, which includes methods of identification, collection, and preservation.

**622\* Herpetology** U G 4

(656) Su. (2nd term). Franz Theodore Stone Laboratory, 3 all-day cl. per week.

Prereq.: 101 or equiv.

Local species of reptiles and amphibians, their habits, life histories, ecology, and classification. Britt.

**623 Biology of Birds** U G 3

(634) W. 2 cl., 1 2-hr. lab.

Prereq.: 101 or equiv.

The aspects of anatomy, physiology, taxonomy, and behavior which are pertinent to the study of birds. Putnam.

**624 Advanced Ornithology** U G 4

(654) Su. (1st term). Franz Theodore Stone Laboratory, 3 all-day cl. per week.

Prereq.: 101 or equiv.

Topics include instinctive behavior in the life of birds, the breeding cycle, social relations, territory, ecology, characteristics of population, and techniques in field study of birds. Putnam.

**625 Mammalogy** U G 3

(629) W. 3 2-hr. cl.

Prereq.: 101 or equiv.

The comparative morphology, taxonomy, life histories, distribution, and importance of the mammals. Good.

**626 Biology of Fishes** U G 5

A. 3 cl., 1 3-hr. lab.

Prereq.: 404, plus 15 cr. hrs. in biological science and permission of instructor.

The laboratory emphasizes ecological and systematic ichthyology; lectures emphasize the behavior, migration, distribution, and evolution of fishes. Momot.

**630 Comparative Embryology** U G 5

(632) W. 3 cl., 2 2-hr. labs.

Prereq.: 101 or equiv.

A survey of various modes of embryonic development, illustrated with both invertebrate and vertebrate type material with emphasis on fundamental aspects and processes. Price.

**633 Vertebrate Physiology** U G 5

Sp. 2 cl., 3 3-hr. labs.

Prereq.: Chem. 521; undergraduates must have credit for Zool. 432.

The physiology of vertebrate animals with emphasis on exchange rates, metabolic rates, energetics and homeostasis.



**640 Animal Behavior U G 5**(605) *W. 3 cl., 2 2-hr. labs.**Prereq.: 101 or equiv.*

An experimental study of the anatomical basis of animal reactions. *Putnam.*

**650 Principles of Animal Ecology U G 5**(636) *Sp. 3 cl., 2 2-hr. labs. Saturday field trips.**Prereq.: Biol. 410.*

Principles and methods of animal ecology and their application to other closely related biological sciences. *Stansbery.*

**651 Field Zoology U G 4**(642) *Su. (1st term). Frans Theodore Stone Laboratory, 3 all-day cl. per week.**Prereq.: 101 or equiv.*

Field and laboratory identification of aquatic and terrestrial vertebrates and invertebrates of the region, in relation to habitats occupied. Of special interest to biology teachers.

**652 Limnology U G 4***Su. (1st term). Frans Theodore Stone Laboratory, 3 all-day cl. per week.**Prereq.: 101 or equiv., 10 cr. hrs. in chem., 10 cr. hrs. in physics.*

Study of physical, chemical, and biological factors influencing fresh water life. Field and laboratory techniques for determining area, chemical, natural flora, and fauna are emphasized. *Britt.*

**653 Fish Ecology U G 4**(623) *Su. (2nd term). Frans Theodore Stone Laboratory, 3 all-day cl. per week.**Prereq.: 621 or equiv.*

Studies of life histories and interspecific relationships of fishes and of the various factors influencing their abundance.

**654 Ecological Physiology of Aquatic Animals U G 4**(637) *Su. (2nd term). Frans Theodore Stone Laboratory, 3 all-day cl. per week.**Prereq.: 101 or equiv., and 10 cr. hrs. of Chem., physics, or physiol.*

Study of the aquatic habitat includes physical and chemical adjustment, tolerance, and acclimatization to environment of vertebrates and invertebrates.

**655 Limnology U G 5***A. 3 hr. lec.—seminar, 1 4-hr. lab.**Prereq.: 10 cr. hrs. chem., 20 cr. hrs. in biological science, and permission of instructor.*

A study of the physical, chemical, and biological factors influencing the biological productivity of inland waters and of techniques and equipment used in evaluating them. *Britt.*

**660 Management of Fisheries U G 5**(607) *Sp. 3 cl., 2 2-hr. lab.**Prereq.: Biol. 410 or equiv.*

Application of ecological principles to the production of sustained annual crops of fish for recreational and commercial purposes. *Momot.*

**661 Wildlife Conservation U G 5**(640) *A. 3 cl., 2 2-hr. labs.**Prereq.: 101 or equiv.*

An introductory course in the conservation and management of wildlife resources. Particular attention will be given to Ohio problems. *Good.*

**662 Methods and Techniques in Wildlife Management U G 5**(641) *W. 3 cl., 2 2-hr. labs.**Prereq.: 101 or equiv.*

A study of research and management techniques employed in the field of wildlife management. This course is especially designed for majors in wildlife conservation. *Good.*

**693 Individual Studies U 2-5**(701) *A, W, Sp.**Prereq.: Permission of instructor.*

Individual work in the field of the chosen problem.

a. Animal Behavior.

*Haub, Putnam, Rothenbuhler, and Good.*

b. Animal Ecology.

*Peterle, Good, Britt, Stansbery, Güts, Colinvaux, and Momot.*

c. Embryology and Vertebrate Zoology.

*Price.*

d. Biometry.

*Skavaril, Griffing, and Harvey.*

e. Genetics.

*House, Paddock, Plaine, Griffing, Harvey, Rothenbuhler, and Skavaril.*

f. Invertebrate Zoology.

*Britt, Crites, and Tidd.*

g. Ornithology.

*Borror, Putnam, Reese, and Kessler.*

h. Parasitology.

*Crites, Miller, Tidd, and Vernard.*

i. Cytology.

*Myser, Paddock, Parrish, and Byers.*

j. Teaching of Biology.

*Tidd and Johnson.*

k. Wildlife Management.

*Peterle, Good, and Bookhout.*

l. General Limnology.

*Britt, Momot, and Colinvaux.*

m. Comparative Physiology.

*Shambaugh.*

n. Electron Microscopy.

*Parrish.*

o. Invertebrate Pathology.

*Briggs and Stairs.*

p. Population Ecology.

*Peterle.*

q. Systematics.

*Borror, Johnston, and Valentine.*

r. Ichthyology.

*Momot.***694 Special Group Studies U G 2-5**(701) *A, W, Sp.**Prereq.: Permission of instructor.*

Group work in the field of the chosen problem (see topics in 693).

**800 Zoological Literature and Preparation of Manuscripts G 3**  
*W. 2 cl., 1 2-hr. lab.*

*Prereq.: 15 cr. hrs. of biol., entom., or zool. at the 600 level or above.*

A study of library organization bibliographies, and guides to zoological literature; the preparation of scientific papers for publication. *Borror.*

**811+ Advanced Zoology of Invertebrates G 5**

(832) *Sp. 3 cl., 2 2-hr. labs. Field trips including a one week optional trip to a marine laboratory.*

*Prereq.: 211 or equiv. and permission of instructor.*

A study of the morphology, physiology, life histories, and classification of the acoelomate pseudocoelomate invertebrates and the annelid worms. *Crites.*

**812\* Advanced Zoology of Invertebrates G 5**

(832) *Sp. 3 cl., 2 2-hr. labs. Field trips including a one week optional trip to a marine laboratory.*

*Prereq.: 211 or equiv. and permission of instructor.*

A study of the morphology, physiology, life histories, and classification of the eucoelomate invertebrates exclusive of annelid worms. *Crites.*

**840 Behavior Genetics G 5**  
*W. 3 1½-hr. cl.*

*Prereq.: 640 and Biol. 630 or Psych. 300 or equiv.*

Development of ethological theory, genetic bases of behavior differences, and evolution of behavior in laboratory, wild and domestic species of both vertebrates and invertebrates. *Rothenbuhler.*

**841 Bioacoustics G 3**  
*Sp. 1 cl., 2-hr. lab. and field trip.*

*Prereq.: Permission of instructor.*

A study of the nature and biological significance of animal sounds. *Borror.*

**851 Population Ecology G 5**  
*W. 5 cl.*

*Prereq.: Biol. 410 and 650.*

Interactions of animal populations considered from the environmental, physiological, and biometrical aspects. *Peterle.*

**880 Seminar G 2**  
*(900) A. 1 cl.*

*Prereq.: Graduate standing.*

Required of all graduate majors in the department during the first Autumn Quarter of registration. *Myser.*

**881 Seminar G 1**  
*(900) A, W, Sp.*

*Repeatable to a maximum of 5 cr. hrs.*

Selected topics to be announced.

**896 Interdepartmental Seminar in Polar and Alpine Studies G 1-3**

*Sp.*

*(See under Interdepartmental Seminars)*

**897 Interdepartmental Seminar in Natural Resources G 1**

*A, W, Sp.*

*(See under Interdepartmental Seminars)*

**999 Research in Zoology G Arr.**  
*(950) A, W, Sp.*

Research for thesis and dissertation purposes only.









# Old/New Course Numbers Cross Reference Index

For quick reference, old course numbers used at Ohio State prior to the 1967-68 academic year are listed in the lefthand column, and to the right are new course numbers currently in use. (Reprint from 1967-68 Catalog)

## ACCOUNTING

Old	New
501	211
502	212
503	221
510	201
603	525
605	523
606	524
623	531
624	415
641	526
642	536
643	711
644	712
713	628
719	535
724	831
735	627
740	689
799	693
801	811
804	861
812	846
813	847
817	844
820	845
828	851
830	852
856	853
860	854
950	999

763	750
764	751
772	760
773	761
775	770
776	865
777(877)	868
778	771
779	775
787	725
788	726
789	776
790	695
798	694
799	693
805	805
821	820
822	825
823	810
831	870
832	871
833	872
841	840
842	841
843	842
861	850
862	851
863	852
871	860
872	861
873	862
881	880
889	899
950	999

697	680
701	593
701	594
701	883
711	740
713	620
716-new course	716
8xx	802
804-new course	804
811	800
811-new course	811
820	805
821	806
821-new course	821
830	810
840	820
850	831
860	830
897	897
899	899
900B	807
900D	834
900D	833
900G	816
900I	801
900J	832
900K	803
950	999
900	995

## AGRICULTURAL EDUCATION

Old	New
456	200
501	230
504	581
505	582
506	583
526	420
550	380
550A	380.01
550B	380.02
550C	380.03
611	640
624	684
625	684
626	684
701	693
703	631
705	641
707	621
708	743
709	744
712	642
715	622
797	770
799	790
799A	790.01
799B	790.02
799C	790.03
799D	790.04

801	823
804	811
806	812
810	795
835	889
850	885
950	999
794-new	794
810-new	810
899-new	899

## AGRICULTURAL ENGINEERING

Old	New
411-new	411
504	240
508	403
510	310
513	230
522	220
525	250
527	270
528	221
536	231
557	473
567	474
600	500
605	551
611-new	611
655	553
677	675
687	676
701	593
702	693
752	723
762	724
765	753
772	725
775	754
779	786
798	784
799	591
801	850
880	808
883	857
885	858
887	877
897	897
950	999

## AGRICULTURAL SURVEY COURSES

Old	New
401	101
501	351
502	590

## AGRONOMY

Old	New
200	200
501	240
515	411
520	412
630	413
525	422
604	441
613	442
600	510
614	530
543	543
603	550
589	589
594	594
599	595
640	602
620	612
601	621
623	623
650	650
605	660
611	670
608	671
712	672
701	693
750	750
786	786
825	822
814	830
850	850
860	860
802	870
871	871
805	872
801	880
884	884
885	885
807	887
896	896
897	897
950	999

## AIR SCIENCE

Old	New
401	101
402	102
403	103
501	201
502	202
503	203
601	301
602	302
603	303
701	411
705	401
706	402
707	403

## AERONAUTICAL AND ASTRONAUTICAL ENGINEERING

Old	New
681	400
682	401
683	500
688	505
698	594
700	600
705	603
707	661
708	660
713	710
714	711
715	712
724	620
725	720
729	606
730	640
731	641
740	715
746	740
754	745
755	746

## AGRICULTURAL ECONOMICS

Old	New
420	411
502	100
510	410
510	412
602	610
603	541
605	530
608	522
610	516
612	502
613	420
614	540
615	531
616	534
618	518
621	521
626	526
628	528
632-new course	632
633	523
650	532
695-new course	695

**ANATOMY**

Old	New
504	200
505	201
513	202
604	604
607	607
608	608
613	613
615	615
616	616
618	618
619	619
621	621
622	622
624	624
625	625
626	642
626A	643
627	627
637	637
638	638
639	639
640	640
641	641
701	693
705	705
711	811
727	727
728	728
807	793
815	815
817	817
818	818
821	821
822	822
824	824
825	825
826	826
830	850
840-new	840
950	999
617-new	617

**ANIMAL SCIENCE**

Old	New
100-new	100
401	200
407	250
501	541
502	542
503	543
505	544
506	500
509	450
510	451
515	440
530	430
619	650
630	630
631	631
701	593
701	594
701	693
701	694
810	800
830	830
898	898
950	999

**ANTHROPOLOGY**

Old	New
501	261
502	251

503	210
607	510
612	410
613	610
630	412
632	460
633	401
634	414
635	415
636	450
637	452
639	570
659	416
660	430
670	662
674	664
700	693
710	640
730	454
731	456
820	803
896	896
899	899
950	999

**ARCHITECTURE**

Old	New
393-new	393
411	111
412	112
413	113
511	211
512	212
513	213
521	521
522	522
523	523
604	601
605	602
606	603
611	511
612	512
613	513
621	621
622	622
623	623
631	689
661	661
662	662
663	663
693-new	693
707	700
711	611
712	612
713	613
714	711
715	712
716	713
754	751
755	752
781	721
782	722
783	723
801	801
802	802
803	803
811	811
812	812
871	871
871A	871.01
871B	871.02
871C	871.03
871D	871.04
871E	871.05
871F	871.06
871G	871.07
871H	871.08

871I	871.09
871J	871.10
899	899
950	999

**ARTS AND SCIENCES SURVEY COURSES**

Old	New
401	001
605	605
608	608
750	750

**ASTRONOMY**

Old	New
400	101
402	102
500	150
601	601
605	605
611	611
650	650
651	651
652	652
700	693
751	785
752	786
753	787
801	801
802	802
803	803
811-new	811
812-new	812
813-new	813
821	821
822	822
823	823
841	841
842	842
843	843
850	850
851	851
852	852
853	853
896	862
897	863
895	895
950	999

**AVIATION**

Old	New
505	211
506	201
507	111
600	401
601	411
603	415
605	419

**BIOCHEMISTRY**

Old	New
610	511
611	521
613	431

620	531
621	541
701	693
701	785
705	611
706	621
707	612
708	622
709	613
710	623
804	850
807	811
808	821
809	831
813	851
898	898
950	999

**BIOLOGY**

Old	New
402	102
403	130
505	410
509	420
604	630
617	640
618	631
630	650
6yy	651
699	670
740	730
804	810
816	832
817	860
830	830
831	831

**BIOPHYSICS**

Old	New
700	700
701	793
702	702
800	800
950	999

**BOTANY**

Old	New
401	100
402	101
403	102
406	410
new course	440
601	620
602	720
605	430
606	431
613	640
614	641
615	642
635	850
640	643
653	660
655	661
658	662
664	610

665	644
667	632
669	611
670	663
672	500
673	612
674	621
701	693
718	861
725	830
730	831
734	832
735	833
737	withdrawn
754	860
757	810
810	809
820	839
825	829
830	849
new course	834
835	819
860	800
new course	869
896	836
897	897
898	898
950	999

**BUSINESS ORGANIZATION**

Old	New
510	301
551	220
614	601
615	490
618	640
621	510
623	611
625	612
627	613
642	670
643	772
646	773
647	771
650	620
651	721
652	729
655	722
657	723
660	724
670	727
674	726
676	500
677	630
682	702
685	731
686	660
687	732
691	734
692	769
693	762
695	761
698	739
700-new	700
701-new	701
700	650
702	751
704	758
705	753
706	754
709	756
716	755
720	757
729	750
730	720
749	870



750	780
760	741
761	743
764	749
799	693
800	800
802-new	802
802	801
803	820
804	920
812	880
813	850
815	950
816	951
817	955
818	852
818A	852.01
818B	852.02
818C	852.03
818D	852.04
818E	852.05
818F	852.06
818G	852.07
819	959
825	929
827	822
829	840
830	841
833	900
834	901
835	830
836	832
838	860
839	909
840	803
841	809
845	889
899	899
930-new	930
961-new	961
931-new	931
960-new	960
950	999
799-new	

# CERAMIC ENGINEERING

Old	New
430	589
521	421
630	489
640	423
650	422
715	611
716	711
719	529
726	741
727	742
731	631
732	632
733	633
734	634
765	785
766	786
775	790
776	791
781	712
782	713
815	889
821	853
822	854
831	851
832	852
841	855
842	856
740	621
750	693

950	999
510-new	510

# CHEMICAL ENGINEERING

Old	New
501	489
593	400
594	401
691	420
692	421
693	693
704	685
719	611
720	612
740	725
741	730
753	608
754	609
755	610
760	760
761	761
763	770
765	777
766	778
770	762
772	764
777	750
790	763
801	801
815 A-O	815(.01-.15)
820	808
821	809
830	812
831	813
861	861
870	862
880	830
905	881
950	999
new course	771
new course	773
new course	775

# CHEMISTRY

Old	New
404	111
405	112
406	113
407	101
408	102
411	121
412	122
413	123
511	201
512	202
513	203
521	211
522	212
523	213
531	221
551	231
552	232
587	587
630	501
631	502
631-new	631
647	241
648	242
649	243

650	244
655	251
656	254
657	252
658	255
659	253
670	521
681	531
682	532
683	533
690	541
691	551
692	552
701	693
721	611
722	612
723	613
726	615
728	622
729	621
742	616
751	671
753	672
754	675
757	632
760	733
761	651
762	652
763	653
772	655
773	855
782	601
784	602
794	635
795	676
803	871
824	991
839	872
841	831
842	832
843	833
844	835
845	836
847	941
848	942
849	943
850	992
861	971
862	972
863	973
864	873
867	995
868	851
869	852
877-new	877
881	875
882	876
885	981
887	881
888	882
889	970
891	997
910	885
950	999

# CHINESE

Old	New
401	101
402	102
403	103
404	104
505	405
506	406
517	417
551	251
571	271
609	609

610	610
611	611
624	624
626	626
627	627
651	661
652	651
671	671
695	693
new course	652
new course	653

# CITY AND REGIONAL PLANNING

Old	New
300-new	300
721	811
722	812
742	742
751	841
752	842
753	843
762	832
763	833
793	813
799	794
799A	794.01
799B	794.02
799C	794.03
799D	794.04
799E	794.05
799F	794.06
799G	794.07
799H	794.08
799I	794.09
799J	794.10
799K	794.11
799L	794.12
801	851
802	852
803	853
821	861
822	862
899	899
950	999

# CIVIL ENGINEERING

Old	New
412	201
502	401
504	402
506	403
604	430
609	601
611	511
616	510
620	410
622	551
623	552
624	571
650	404
661	581
662	582
669	589
680	680
701	632
703	611
705	731
710	570
711	530

714	631
715	732
716	612
722	672
723	771
724	671
725	651
726	751
728	512
731	752
733	733
734	734
738	673
739	772
741	531
742	613
743	716
744	736
745	776
746	701
748	711
749	712
750	652
761	681
762	682
799	794
805	852
808	801
810	850
815	851
816	853
817	854
818	855
820	872
821	871
825	870
826	830
827	831
828	832
829	833
831	810
832	811
833	812
835	834
896	896
899	885
949	881
950	999
new course	773
new course	713
new course	873
new course	856
new course	857
858-new	858

# CLASSICS

Old	New
225-new	225
510	210
520	220
521	221
522	222
524	224
607	507

# COMMERCE SURVEY COURSES

Old	New
401	001
402	101
798	301

**COMPARATIVE LITERATURE AND LANGUAGES**

Old	New
401	101
402	102
403	103

**CONSERVATION**

Old	New
401	201
514	202
561	489
new course	693

**DAIRY SCIENCE**

Old	New
401	201
501	withdrawn
504	340
507	207
512	withdrawn
520	420
610	610
612	612
614	613
new course	640
701	593
701	893
714	885
720	720
801	800
812	710
820	820
840	810
898	898
950	999

**DAIRY TECHNOLOGY**

Old	New
401	201
415	289
515	489
520	411
601	521
602	522
603	631
604	632
605	745
609, 610	636
626, 627	634
651	695
701	493
701	693
710	623
800	850
810	885
898	898
950	998
950	999

**DANCE**

Old	New
138-new	138
411	111
412	112
413	113
414	214
415D	215
416D	216
424	199
538	438
539	439
548	248
631	531
632	532
633	533
650	650
657	657
658	658
659	659
701	693
820G	994
190-new	190
534-new	534
535-new	535
536-new	536
537-new	537

**DENTAL HYGIENE**

Old	New
401	201
402	203
403	223
404	283
405	331
501	243
502	311
503	312
504	313
505	372
506	233
507	341
508	321
509	322
510	323
511	351
512	361
513	382
514	383
515	301
516	393

**DENTISTRY**

Old	New
301	301
302	302
303-new	303
305	305
306	306
320	320
381	381
382	382
386	386
389	389
403	403
404	404
413	413
431	431
432	432

433	433
452	452
453	453
462	462
463	463
482	482
483	483
484	484
485	485
486	486
487	487
489	489
501	501
502	502
511	511
512	512
513	513
531	531
532	532
533	533
540	540
541	541
542	542
545	545
546	546
547	547
548	548
549	549
551	551
552	552
553	553
555	555
556	556
560	560
561	561
562	562
563	563
572	572
573	573
581	581
582	582
583	583
584	584
585	585
586	586
587	587
593	593
600	785
601	601
602	602
603	603
604	604
605	605
606	606
612	612
613	613
621	621
622	622
623	623
631	631
632	632
633	633
645	645
646	646
647	647
648	648
649	649
651	651
652	652
653	653
661	661
662	662
663	663
672	672
673	673
681	681
682	682
683	683
684	684
685	685
686	686
693	793
800	700

800A	700.01
800B	700.02
800C	700.03
800D	700.04
800E	700.05
800F	700.06
800G	700.07
800H	700.08
800I	700.09
800J	700.10
805	795
950	999
641-new	641
642-new	642
643-new	643

**ECONOMICS**

Old	New
201-new course	201
402-new course	402
501-new course	501
502-new course	502
542	442
560	560
600	500
606	506
610	610
612	512
623	520
625	625
634	630
636	530
644	644
651	651
653	653
655	655
656	656
663	663
665	665
666	666
667	691
668	580
670	670
671	570
672	672
676	676
677	677
680	680
683	683
684	684
688	688
690	690
697	697
698	698
699	693
700	599
708	805
709	806
713	613
714	614
740	640
741	641
742	642
745	645
770	679
798	694
800	800
801	801
802	802
803	803
804A	808
804B	809
807	807
810	810
811	811
820	820
821	821

**EDUCATION**

Old	New
401	010
402	011
404	012
405	013
408	108
440	120
441	231
442	232
442-new	442
443	233
444	234
445	235
446	420
450	424
451	425
456	430
460	242
471	201
472	211
473	212
505	289
505A	289.01
505B	289.02
505C	289.03
505E	289.04
505K	289.05
505M	289.06
505S	289.07
505T	289.08
505U	289.09
509	501
510	502
513-new	513
514	461
515	460
516	507
517	508
518	585
518A	585.10
518B	585.11
518C	585.12
518D	585.13
520	586
520A	586.14
520B	586.15
520C	586.03
520S	586.07
520T	586.08
520-new	520
521	467
521-new	521
522	243
528	511
535	435
536	587
536A	587.14
536B	587.15
536C	587.03



536D	587.16	650	660	776	929	new course	842	739	710
536F	587.17	651	661	777	723	844	949	740	660
536G	587.21	654	812	778	724	new course	845	741	684
536H	587.22	655	832	779	839	845	940	742	760
536J	587.23	656	813	780	529	848	941	743	701
536L	587.18	657	814	781	605	849	948	744	707
536M	587.24	659	546	782	606	850	944	746	703
536N	587.25	660	621	799	692	851	951	747	702
536O	587.19	661	815	799A	692.23	853	953	748	708
536P	587.26	663	612	799B	692.33	854	942	756	713
536Q	587.27	666	652	799C	692.10	855	943	763	720
536R	587.28	667	665	799C	692.10	856	936	764	727
536S	587.07	669	613	799D	692.34	859	917	768	731
536T	587.00	670	560	799J	692.43	863	865	769	632
536U	587.09	671	561	799K	692.49	864	829	781	721
536X	587.29	674	614	799M	692.44	865	873	782	728
536Z	587.20	676	859	799R	692.28	886	871	784	715
537	588	677	526	799T	692.47	868	866	787	732
537A	588.30	681	627	799T	692.47	870	950	788	714
537C	588.09	682	691	799T	692.47	871	951	789	733
537D	588.31	688	540	799X	692.29	872	954	790	740
537E	588.04	689	622	800	925	873	955	791	747
537L	588.32	692	616	800A	925.23	875	956	792	741
538	589	694	618	800B	925.33	876	957	793	748
543	523	695	649	800C	925.10	880	958	794	742
544	524	701	860	800D	925.34	885	870	815	800
547	433	702	861	800E	925.35	886	871	817	817
560	246	703	862	800F	925.40	887	872	818	818
561	532	704	816	800G	925.21	898	934	827	804
562	533	705	864	800H	925.22	899	899	828	805
563	534	706	849	800I	925.41	950	999	830	802
575	575	708	863	800J	925.43	new course	964	831	803
581	251	710	858	800M	925.44	new course	965	832	810
585	255	711	927	800N	925.25	new course	966	833	840
600	693	712	850	800O	925.45	new course	967	834	853
600A	693.23	713	653	800P	925.26	new course	970	841	820
600B	693.33	714	833	800Q	925.27	new course	971	842	821
600C	693.10	715	834	800R	925.28	new course	880	844	829
600D	693.34	717	807	800S	925.46			845	822
600E	693.35	718	654	800T	925.47			846	823
600F	693.40	719	655	800U	925.09			847	850
600G	693.21	720	656	800V	925.48			848	851
600H	693.22	722	800	800X	925.29			850	811
600I	693.41	723	801	800Y	925.49			851	813
600J	693.43	724	802	802	968			852	816
600M	693.44	725	803	804	867			853	812
600N	693.25	726	804	808	947			854	830
600O	693.45	727	946	809	915	Old	New	855	831
600P	693.26	728	805	810	916	504	580	856	832
600Q	693.27	730	717	815	835	612	501	857	834
600R	693.28	731	838	818	881	613	502	858	835
600S	693.46	732	719	823	952	614	503	859	836
600T	693.47	734	713	new course	823	615	504	860	808
600U	693.09	735	714	new course	824	617	510	861	809
600V	693.48	736	715	825	948	618	511	870	814
600X	693.29	741	817	new course	827	619	512	881	880
600Y	693.49	747	818	831	868	625	581	881	881
601	677	748	819	832	939	626	620	895	895
602	675	749	820	835	993	627	621	899	899
new course	601	750	874	835A	993.23	628	622	950	999
new course	602	752	875	835B	993.33	642	500	new course	630
603	617	753	821	835C	993.10	643	540	new course	693
604	551	754	876	835D	993.34	644	520	new course	694
605	625	755A	877	835F	993.40	650	640	new course	712
606	626	755B	878	835G	993.21	651	641	new course	761
607	637	756	879	835H	993.22	652	642	new course	794
608	666	757	911	835I	993.41	662	507	new course	860
new course	608	758	912	835J	993.43	663	508	new course	861
609	667	759	913	835M	993.44	664	517	new course	815
611	659	760	914	835N	993.25	665	627	new course	910
612	662	761	841	835O	993.45	667	628	new course	819
613	663	762	843	835P	993.26	668	647	new course	806
617	712	764	710	835Q	993.27	669	657	new course	833
619	668	766	718	835R	993.28	707	700		
624	624	768	768	835S	993.46	716	650		
627	556	768.51	768.51	835T	993.47	718	711		
628	631	768.52	768.52	835U	993.09	719	717		
632	632	770	672	835V	993.48	723	767		
636	636	771	673	835X	993.29	724	718		
641	610	772	847	836	959	725	757		
643	811	774A	931	837	960	728	751		
644	669	774B	932	838	961	731	753		
649	690	775	928	840	844	733	752		
				841	869	734	758		
						738	754		

ELECTRICAL  
ENGINEERING

ENGINEERING  
GRAPHICS

Old	New
400	100
402	102
new course	111



**ENGINEERING  
GRAPHICS (Cont'd)**

new course.....	112
439 .....	129
new course.....	194
499 .....	199
504 .....	204
506 .....	206
508 .....	208
537 .....	237
755 .....	755

**ENGINEERING  
MECHANICS**

Old	New
511 .....	201
512 .....	202
513 .....	203
521 .....	210
602 .....	420
605 .....	521
606 .....	522
607 .....	410
617 .....	510
650 .....	200
703 .....	627
704 .....	748
707 .....	731
712 .....	621
715 .....	751
716 .....	624
717 .....	711
718 .....	752
725 .....	754
727 .....	757
735 .....	840
740 .....	740
741 .....	741
750 .....	700
799 .....	694
801 .....	881
807 .....	831
808 .....	732
810 .....	860
817 .....	811
820 .....	847
824 .....	854
825 .....	855
827 .....	835
830 .....	812
840 .....	843
845 .....	845
950 .....	999
new course.....	660
new course.....	833
new course.....	832
new course.....	864
new course.....	889

**ENGINEERING  
SURVEY COURSES**

Old	New
401 .....	101
402 .....	102
601 .....	501

**ENGLISH**

Old	New
406 .....	071
407 .....	072
408 .....	073
416 .....	101
417 .....	102
418 .....	103
419 .....	104
420 .....	105
505 .....	301
506 .....	302
507 .....	265
508 .....	266
510 .....	290
519 .....	305
520 .....	260
521 .....	261
529 .....	280
540 .....	240
550 .....	220
555 .....	262
563 .....	293
564 .....	294
609 .....	551
610 .....	552
614 .....	643
615 .....	553
616 .....	665
620 .....	670
621 .....	676
625 .....	570
626 .....	671
627 .....	672
635 .....	531
636 .....	535
640 .....	642
641 .....	540
642 .....	541
643 .....	565
648 .....	667
653 .....	615
654 .....	513
656 .....	641
670 .....	649
671 .....	522
674 .....	621
676 .....	520
677 .....	624
678 .....	634
689 .....	680
690 .....	699
701 .....	693
702 .....	871
703 .....	872
704 .....	873
705 .....	783
708 .....	851
709 .....	852
710 .....	876
715 .....	880
717 .....	865
727 .....	847
728 .....	848
735 .....	831
736 .....	833
737 .....	832
738 .....	835
742 .....	841
744 .....	842
745 .....	840
746 .....	813
747 .....	814
749 .....	810
751 .....	811
754 .....	812
755 .....	877
756 .....	878
757 .....	815
771 .....	822
772 .....	821

773 .....	823
775 .....	830
776 .....	820
835 .....	935
836 .....	936
837 .....	933
838 .....	934
842 .....	940
843 .....	941
852 .....	910
853 .....	911
854 .....	912
855 .....	913
865 .....	950
866 .....	951
875 .....	922
876 .....	923
877 .....	920
878 .....	921
880 .....	980
881 .....	982
950 & 750 .....	999

**ENTOMOLOGY**

Old	New
550 .....	200
551 .....	460
566 .....	561
600 .....	431
608 .....	602
640 .....	660
650 .....	500
651 .....	621
653 .....	662
655 .....	661
670 .....	611
671 .....	612
701 .....	693
701 .....	694
705 .....	751
706 .....	752
712 .....	753
814 .....	841
816 .....	802
817 .....	821
850 .....	831
896 .....	896
897 .....	897
950 .....	999
new course.....	870
new course.....	871
new course.....	361
new course.....	670

**FINE ARTS**

Old	New
new course.....	281
400 .....	100
401 .....	190
402 .....	295
406 .....	297
407 .....	270
411 .....	296
421 .....	170
423 .....	171
430 .....	290
431 .....	251
432 .....	252
433 .....	253
459 .....	200
461 .....	180

484 .....	140
490 .....	240
491 .....	244
494 .....	111
497 .....	110
500 .....	175
501 .....	210
502 .....	211
503 .....	212
505 .....	272
509 .....	213
new course.....	520
526 .....	276
527 .....	274
528 .....	273
530 .....	260
534 .....	280
548 .....	401
549 .....	402
554 .....	450
555 .....	451
556 .....	452
558 .....	258
562 .....	282
569 .....	300
570 .....	500
572 .....	468
573 .....	469
576 .....	465
577 .....	250
new course.....	580
new course.....	581
582 .....	460
583 .....	461
584 .....	462
585 .....	530
587 .....	242
590 .....	245
591 .....	withdrawn
592 .....	246
593 .....	441
594 .....	442
595 .....	443
600 .....	603
603 .....	650
604 .....	651
605 .....	550
606 .....	551
607 .....	552
608 .....	660
609 .....	661
610 .....	662
626 .....	616
new course.....	617
625 .....	570
627 .....	618
628 .....	619
new course.....	629
629 .....	636
new course.....	630
630 .....	571
632 .....	624
new course.....	633
633 .....	625
635 .....	665
636 .....	666
new course.....	637
637 .....	667
new course.....	640
new course.....	641
new course.....	642
643 .....	677
644 .....	572
new course.....	652
654 .....	515
660 .....	573
661A,B,C,D,E, G,H,I,J,K, P,S .....	693(.01-.11)
662 .....	withdrawn
663 .....	withdrawn
669 .....	638
670 .....	621

671 .....	622
675 .....	615
678 .....	635
679 .....	613
new course.....	680
684 .....	627
685 .....	816
686 .....	631
687 .....	670
688 .....	678
689 .....	620
701 .....	993
701A .....	993.01
701C .....	993.03
701D .....	993.04
701E .....	993.05
701G .....	993.06
701P .....	993.10
701S .....	993.11
702 .....	withdrawn
703 .....	withdrawn
704 .....	726
705 .....	879
708 .....	725
710 .....	805
714 .....	806
715 .....	807
718 .....	804
720 .....	715
721 .....	839
722 .....	840
723 .....	841
724 .....	875
725 .....	876
726 .....	870
727 .....	871
728 .....	582
729 .....	681
730 .....	718
799 .....	501
801 .....	withdrawn
801C .....	940
801D .....	950
801E .....	911
801G .....	971
801P .....	970
801S .....	980
802 .....	withdrawn
803 .....	withdrawn
804 .....	withdrawn
804A .....	914
804B .....	939
804C .....	917
804D .....	930
804E .....	932
804F .....	920
813 .....	845
814 .....	846
815 .....	847
816 .....	848
817 .....	874
818 .....	881
819 .....	885
820 .....	887
950 .....	999

**FORESTRY**

Old	New
new course.....	432
408 .....	222
409 .....	221
410 .....	310
421 .....	321
423 .....	323
425 .....	325
502 .....	223
701 .....	593



950 ..... 998  
new course ..... 431  
new course ..... 433

**FRENCH**

Old	New
401	101
402	102
403	103
404	104
405	571
new course	572
new course	573
410	105
415	162
416	163
517	421
518	401
521	402
522	403
529	422
530	423
532	404
535	441
570	271
603	624
604	625
616	621
617	622
618	623
619	602
628	601
634	627
636	641
638	603
639	629
640	626
642	604
645	631
651	628
701	693
705	783
new course	794
717	824
718	825
719	826
720	827
729	811
731	885
801	812
802	813
803	828
804	829
805	822
811	831
812	832
813, 713	821
817	833
880	886
950	999
new course	112

**GEODETIC SCIENCE**

Old	New
new course	512
new course	513
new course	522
new course	613
new course	614
617	663

new course	624
625	625
new course	627
new course	631
new course	641
653	642
686	686
687	687
688	688
689	689
new course	693
new course	694
721	626
723	821
725	822
758	657
759	852
794	994
795	887
new course	812
823	823
825	825
new course	826
new course	844
new course	846
new course	847
403	751 & 851
422	863
423	853
404	855
441	new course
271	950
624	999

**GEOGRAPHY**

Old	New
401	220
403	240
503	340
504	200
505	400
510	580
603	640
604	530
605	401
611	681
615	520
620	411
new course	620
621	410
622	412
624A,B	405(.01, .02)
625	416
626	415
627	408
630	545
631	546
633	647
634	650
new courses	660 and 670
700	885
701	693
702	682
712	560
798	694
802A,B	883(.01, .02)
803A-D	840(.01-.04)
804	800
805	860
806A,B	850(.01, .02)
807A,B,C	820(.01-.03)
811	882
812	880
850	889
896	896
897	897
899	899
950	999

**GEOLOGY**

Old	New
416	100
417	101
418	102
505	200
520	201
524	202
525	203
533	204
new course	570
600	560
601	550
602	530
605	660
607	661
613	650
618	500
619	501
622	612
623	611
624	610
625	613
627A	581.01
627B	581.02
630	880
632	580
634	640
635A	641
635B	642
636	652
637	651
new course	670
701	693
701A	693.01
701B	693.02
701C	693.03
701D	693.04
701E	693.05
701F	693.06
701G	693.07
701H	693.08
701I	693.09
701J	693.10
701K	693.11
701L	693.12
701M	693.13
701N	693.14
701O	693.15
701P	693.16
701Q	693.17
705	663
706	631
708	680
709	662
713	602
720	632
725	630
735	643
736	644
740	620
820	870
821	871
822	872
823	873
825	830
827	850
851	874
855	695
896	896
950	999
new course	600
new course	601
new course	621
new course	681
new course	810
new course	820
new course	821
851	851

**GERMAN**

Old	New
new course	261
new course	262
401	101
402	102
403	103
404	104
409	109
412	112
417	117
418	118
420	113
421	114
499	571
501	572
502	119
503	203
504	204
571	361
572	362
new course	573
575	225
576	226
577	227
new course	611
new course	612
650	650
656	606
661	621
662	622
663	623
685	630
691	635
new course	694
701	693
705	605
721	721
722	722
723	723
724	724
725	725
726	726
801	801
805	802
810	803
815	806
821	821
822	822
823	823
860	860
870	870
950	999

**GRADUATE SCHOOL**

Old	New
701	801

**GREEK**

Old	New
401	101
402	102
403	103
415	112
504	200
506	210
603	603
604	201
606	606
607	202

608	608
609	609
612-new	612
631	693
670	810
705	850
706	851
707	852
800-new	800
802-new	802
803-new	803
804-new	804
993-new	993
995-new	995
996-new	996
999-new	999

**HEALTH EDUCATION**

Old	New
400	101
473	102
510	200
609	300
610	301
641	602
642	610
644	620
692	621
693	693
705	603
799	690
801	995
820	994
820J	994.01
820K	994.02
820L	994.03
950	999
new course	501
new course	103
new course	201
996-new	996

**HISTORY**

Old	New
401	101
402	102
403	103
404	104
421	121
422	122
423	123
504	230
510	212
511	210
512	211
513	231
517	213
520	220
537	232
538	233
590	215
607	609
608	610
609	630
610	632
617	612
618	668
619	606
620	614
622	628

## HISTORY (Cont'd)

623	629
624	613
626	641
627	642
628	643
629	618
630	620
631	675
633	661
634	662
635	670
636	671
639	676
640-new	640
641	660
642	672
643	682
644	656
645	651
646	652
647-new	647
648	658
649	602
649-new	649
650	604
651	648
653	600
654-new	654
655-new	655
656	603
668	664
673	680
674	681
675	635
676	636
677	637
678	639
679	653
681	638
686	633
687	622
689	683
693	301
694	644
695	645
696	678
697	679
698	646
700	693
705	783
715-new	715
716-new	716
717-new	717
718-new	718
719-new	719
720-new	720
721-new	721
722-new	722
723-new	723
724-new	724
737	871
738	872
771A	740
771B	741
789	730
790	731
809	800
810	801
811	802
812A	811
812B	812
813	813
814	814
815	803
816	804
817	805
819	865
820	866
821	867
822	868
823	869
824	870
825	850
845-new	845
862-new	862
863-new	863
864-new	864
880-new	880
899	899
950	999
new course	240
new course	615
new course	616
new course	621
new course	631
new course	648
new course	650
new course	659
new course	665
new course	666
new course	667
new course	673
new course	674
new course	677
new course	694

## HOME ECONOMICS

Old	New
400	090
440	110
505	371
505	371
506	322
507	274
508	470
510	320
512	328
513	228
518	325
530	270
531	374
541	441
542	442
543	443
545	435
548	310
549	314
550	413
555	313
559	326
560	327
561	362
562	360
563	363
570	230
571	430
580	422
585A,B,C,D, F,G,H,I, J,L	589(.01-10)
599	290
601	574
604	674
610	610
612	612
615	615
616	616
619	423
622	622
623	623
627	427
628	628
630	630
631	431
632	632
633	633

634	634
640	596
662	662
663	663
664	462
665	463
666	598
670	870
671	671
672	672
673	571
680	595
701A-J	893(.01-10)
702	845
705	810
715	813
719	827
720	825
721	826
731	635
735	816
740	841
741	846
742	844
750	840
761	860
762	667
771	871
794	794(.01-10)
799A-J	690(.01-10)
801	782
810	802
820, 821	822
830	830
831	832
840	842
841	843
861	862
898	898
899	899
950	999
new	538
new	590
new	593(.01-10)
new	594(.01-10)
new	711
new	861

## HORTICULTURE

Old	New
403	203
408	111
423	241
440	415
503	461
504	462
522	450
524	441
526	650
542	422
544	431
550	432
551	433
552	434
570	489
601	601
609	609
610	610
622	622
624	642
629	741
631	641
643	622
645	623
650	733
651	624

683	731
701	593
701	893
701	599
705	805
710	794
712	812
713	732
804	804
810	801
811	811
897	897
898	898
950	999
new course	442
new course	611
new course	690
new course	694
new course	699

## INDUSTRIAL ENGINEERING

Old	New
404	201
420	202
519	401
521	402
602	403
614	431
630	589
633	532
639	685
663	501
664	502
667	531
706	601
708	506
709	505
714	533
715	534
761	504
764	602
771	503
798A	750.01
798B	750.02
798C	750.03
798D	750.04
798E	750.05
798F	750.06
798G	750.07
798H	750.08
798I	750.09
798J	750.10
798K	750.11
798L	750.12
798M	750.13
799	693
801	881
802	881
803	881
811	811
812	812
821	821
828	828
840	840
842	842
843	843
844	844
851	851
861	861
862	862
863	863
866	866
871	871
899	899
950	999

## INTERDEPARTMENTAL SEMINARS

Old	New
895	895
896	896
897	897
898	898
899	899

## INTERNATIONAL STUDIES

Old	New
410	100
520	235
540	230
601	501
705	783

## ITALIAN

Old	New
401	101
402	102
new	103
new	104
new	112
503	421
504	422
505	423
510	202
new	534
611	621
612	622
613	623
701	693
950	999
new	794

## JAPANESE

Old	New
new course	251
new course	252
401	101
402	102
403	103
404	104
505	405
506	406
517	417
609	609
610	610
611	611
new course	624
new course	626
new course	651
695	693

## JOURNALISM

Old	New
401	101
402	201
501	204



505	641	406	200
509	205	407	201
510	203	408	202
517	102	412	050
519	211	415	112
602	601	501	300
603	623	502	301
605	401	505	303
606	611	540	340
607	612	544	344
608	642	603	603
612	602	612	612
613	621	615	615
615	622	616	616
617	631	617	617
618	632	625	625
619	633	627	627
621	624	631	631
624	651	650	850
626	626	651	851
627	634	652	852
699	625	701	993
700	783	702	802
711	693	703	803
714	206	704	804
802	801	705	805
803	802	706	806
804	803	707	807
899	899	720	820
950	999	800	800
202-new	202	861	808
555-new	555	809-new	809
627-new	627	810-new	810
643-new	643	811-new	811
811-new	811	855-new	855
812-new	812	856-new	856
813-new	813	860-new	860
911-new	911	800-new	861
		862-new	862
		995-new	995
		996-new	996
		950	999

LANDSCAPE  
ARCHITECTURE

Old	New
300-new	300
507	201
508	202
509	203
550	200
587	221
588	222
589	223
617	611
618	612
619	613
627	661
628	662
629	663
687	621
688	622
689	623
693-new	693
717	711
718	712
719	713
759	750
787	721
788	722
789	723

LATIN

Old	New
401	101
402	102
404	103
405	104

LAW

Old	New
090	500
091	501
092	502
093	600
094	700
500	503
505	504
510	505
511	506
515	507
520	509
530	601
545	602
550	510
555	603
560	702
565	604
570	511
575	605
580	606
585	607
600	703
605	704
610	613
615	608
625	706
630	609
631-new	610
650	611
651	707
652	612
653	701
654	708

655	705
658A	614
658B	615
659	709
660	616
661	617
662	710
663	711
664	618
665	619
666	620
667	712
668	713
670	621
671	714
673	622
674	715
677	716
678	623
679	717
680	718
681	624
682	719
684	625
693	793
695	795
695A	795.01
695B	795.02
695C	795.03
695D	795.04
695E	795.05
695F	795.06
695G	795.07
696	796
696A	796.01
696B	796.02
696C	796.03
696D	796.04
696E	796.05
696F	796.06
696G	796.07
696H	796.08
696I	796.09
696J	796.10
696K	796.11
696L	796.12
696M	796.13
696N	796.14
696O	796.15
696P	796.16
696Q	796.17
696R	796.18
696S	796.19
696T	796.20
696U	796.21
696V	796.22
new	796.23
new	796.24
new	796.25
new	796.26
new	796.27
720-new	720
721-new	721
626-new	626
794-new	794

LINGUISTICS

Old	New
522	201
523	202
600-new	600
601	601
602	602
603	603
650	650
671	671
672	672

673-new	673
679	679
681-new	681
701	693
720	795
761	801
762	802
771	811
803-new	803
812-new	812
820	820
821	821
822	822
950	999

MATHEMATICS

Old	New
108-new	108
410	105
412	101
413	109
414	110
416	116
417	117
435	125
439	150
440	151
441	152
542	153
543	254
544	255
545	205
546	421
590	241
601	550
607	552
609	412
611	556
621	507
622	413
624	414
626	557
631	504
635	501
636	502
637	503
641	570
642	611
643	560
645	612
646	613
647	614
651	505
652	506
661	551
665	545
666	546
670	571
672	520
673	521
674	522
680	573
692	541
694	642
695	543
698	645
699	694
700	693
701	750
702	751
704	767
705	768
721	602
722	701
723	601
725	702
726	703

727	704
728	705
729	706
730	603
731	722
733	721
734	824
741	755
742	756
743	680
750	857
751	858
761	770
762	771
763	772
790	740
793	741
794	742
795	743
798	794
801	753
802	754
807	763
808	764
815	867
817	863
818	864
819	978
821	859
826	959
827	960
830	847
831	848
841	851
842	852
849	925
850	926
855	830
856	831
857	832
862	979
864	972
865	980
871	873
872	874
873	876
880	877
950	999
new course	121
new course	122
new course	123
new course	190
new course	191
new course	192
new course	290
new course	291
new course	292
new course	294
new course	425
new course	426
new course	528
new course	529
new course	553
new course	574
new course	583
new course	608
new course	620
new course	621
new course	622
new course	629
new course	641
new course	643
new course	651
new course	652
new course	653
new course	662
new course	670
new course	671
new course	672
new course	674
new course	720
new course	725
new course	726

**MATHEMATICS  
(Cont'd)**

	703	720
	704	721
	710	741
	716	742
new course	727	721
new course	728	722
new course	729	723
new course	746	724
new course	749	725
new course	752	726
new course	760	736
new course	761	745
new course	762	755
new course	779	756
new course	780	761
new course	781	762
new course	782	763
new course	825	767
new course	826	768
new course	827	769
new course	828	770
new course	844	771
new course	846	772
new course	854	773
new course	855	778
new course	860	779
new course	861	780
new course	862	798
new course	865	799
new course	866	801
new course	869	802
new course	931	803
new course	932	807
new course	933	809
new course	934	810
new course	935	811
new course	936	812
new course	937	820
new course	938	821
new course	949	822
new course	950	830
new course	951	831
new course	954	832
new course	957	840
new course	961	841
new course	970	843
new course	971	844
new course	973	853
new course	974	854
new course	975	855
new course	981	860
new course	982	861
new course	983	890
new course	984	950
new course	985	30-new
new course	986	870-new
new course	987	
new course	988	
new course	989	
new course	990	
new course	996	
new course	997	
new course	998	

**MEDICAL  
DIETETICS**

Old	New
501	201
510	310
515	421
516	422
517	423
new course	521
new course	522
601	631
602	632
620	644
622	645
626	636
627	637
628	638
new course	646
785	693

**MECHANICAL  
ENGINEERING**

Old	New
601	500
607	501
608	502
609	503
610	510
614	520
615	551
616	552
621	511
627	450
672	505

**MEDICAL  
MICROBIOLOGY**

Old	New
624	624
625	625
new course	793
new course	793.01
new course	793.02
new course	793.03
new course	793.04

**MEDICAL  
TECHNOLOGY**

Old	New
640	511
641	512
642	514
643	513
646	515

**MEDICINE**

Old	New
601	601
602	602
603-new	603
661	661
675	575
714	714
715	715
new course	715.01
new course	715.02
new course	715.03
new course	715.04
new course	715.05
new course	715.06
new course	715.07
new course	715.08
new course	715.09
new course	715.10
new course	715.11
new course	715.12
770	770
771	771
793 A-K	793 (01-12)
798	798
799	799
950	999
new course	603
795-new	850

**METALLURGICAL  
ENGINEERING**

Old	New
420	489
new course	490

new course	500
501	410
560	440
611	440
630	450
631	451
632	550
645	589
661	430
662	431
663	420
671	590
672	591
673	592
703	551
704	552
710	693
712	530
716	675
721	610
722	611
724	710
730	635
731	735
735	660
740	750
741	745
742	851
743	852
745	615
759	670
760	671
761	520
762	521
763	620
770	740
771	841
772	842
776	502
780	855
790	845
801	881
815	820
820	860
830	835
835	861
844	730
845	831
850	800
851	801
852	802
901	884
950	999
new course	736
new course	832

**MICROBIOLOGY**

Old	New
409	209
509	509
510	210
511	211
512	212
602	612
603	613
605	605
607	607
610	630
620	729
622	622
623	623
633	609
634	734
635	760
636	636
638	761
649	749
652	652
701	693

710	710
720	820
722	822
735	860
807	880
896	896
897	897
898	898
950	999
new course	625
new course	639
new course	723
new course	725
new course	736
new course	765
new course	770
new course	780
new course	781
new course	824

**MILITARY  
SCIENCE**

Old	New
401	101
402	102
403	103
501	201
502	202
503	203
601	301
602	302
603	303
701	401
702	402
703	403

**MINERALOGY**

Old	New
506	414
511	411
512	412
601	645
605	605
611	624
621	621
701	784
706	706
722	722
725	823
730	730
754	654
755	665
801	881
950	999
new course	650
new course	875
new course	876
new course	858
new course	831
new course	807
new course	808

**MUSIC**

Old	New
400	001
400A	001.01
400B	001.02
400C	001.03
400D	001.04
400E	001.05





## OPTOMETRY

Old	New
514	441
515	442
516	443
531	431
532	432
533	433
541	641
542	642
543	643
545	745
555	701
556	702
557	703
561	721
563	722
601	741
602	742
603	743
651	651
652	652
653	653
660	660
new course	401

## OTOLARYNGOLOGY

Old	New
751	751
793	793
794	794
799	799
new course	820
new course	850
new course	850.01
new course	850.02
new course	850.03
new course	850.04
new course	850.05
new course	999

## PATHOLOGY

Old	New
603	603
624	624
625	625
626	626
630	501
631	502
632	504
633	503
636	506
637	507
645	505
650	550
655	555
793	new 793(.01-.15)
798	798
799	799
800	850
950	999
new course	792
new course	792.01
new course	792.02
new course	792.03
new course	792.04
new course	792.05
new course	792.06
new course	792.07
new course	792.08

## PEDIATRICS

Old	New
715	715
716	new course 830
793	793
793A	793.01
793B	793.02
793C	793.03
793D	793.04
793E	793.05
793F	793.06
793G	793.07
793H	793.08
793I	793.09
793J	793.10
793K	793.11
793L	793.12
793M	793.13
793N	793.14
794	794
794A	794.01
794B	794.02
794C	794.03
794D	794.04
794E	794.05
794F	794.06
794G	794.07
794H	794.08
794I	794.09
794J	794.10
794K	794.11
798	798
799	799
900	850
950	999

PETROLEUM  
ENGINEERING

Old	New
602	442
713	542
723	543
735	641
736	642
737	544
750	743
750C	743.01
750D	743.02
765	796
802	842
950	999

## PHARMACOLOGY

Old	New
600	600
601	601
610	610
700	700
701	701
750	850
770	770
793	793
820	720
821	721
822	722
823	723
845	745
851	751
950	999
new course	752

## PHARMACY

Old	New
401	401
402	402
470	470
503	503
504	504
505	505
509	520
512	524
513	525
514	511
521	450
522	451
530	430
531	431
550	490
551	491
600	579
601	675
602	577
604	534
605	535
606	606
607	570
610	635
613	613
614	435
615	690
619	677
621	507
622	508
623	509
632	632
643	515
645	695
647	609
650	625
693	693
708	671
709	672
711	636
712	737
714	680
715	615
717	553
718	754
725	715
730	789
805	805
806	806
807	816
808	817
809	809
811	811
812	812
825	825
826	826
833	855
835	835
836	836
845	845
846	846
850	850
851	851
852	852
853	853
870	870
871	871
872	872
880	880
881	881
890	993
950	999

## PHILOSOPHY

Old	New
400	100
401	101
402	150
405	130
406	170
510	230
515	240
601	511
602	512
603	513
604	611
607	613
609	714
618	672
633	718
634	721
635	717
636	719
637	720
638	712
639	713
640	724
642	615
646	722
647	723
649	650
650	651
652	676
653	675
654	677
657	767
661	760
663	763
664	764
665	671
666	673
671	631
701	693
720	770
807	875
821	850
822	864
823	861
824	831
825	811
826	885
827	841
828	870
829	877
830	853
950	999
520	210
617	617
new course	641
new course	653
new course	715
new course	761
new course	771

## PHOTOGRAPHY

Old	New
511	201
603	506
605	505
610	507
615	508
625	594
650	501
699	693

PHYSICAL  
EDUCATION

Old	New
401	101
402	102
403	103
411	131
412	132
413	133
414	231
415	232
416	233
611	new course 420
613	new course 420.01
714	new course 420.02
672	new course 420.03
718	new course 420.04
721	new course 420.05
717	new course 420.06
719	new course 420.07
720	new course 420.08
712	new course 420.09
713	new course 420.10
724	new course 420.11
615	new course 420.12
421	104
422	105
423	106
425	107
426	108
427	109
482	270
514	214
520	221
521	222
541	541
542	542
543	543
551	589
560	271
576	323
601	820
615	830
616	530
621	621
625	650
630	662
640	640
647	647
648	648
649	770
655	771
682	642
685	661
691	660
701	693
799	890
802	995
803	996
805	841
810	850
814	842
816	830
820	994
820A	994.01
820B	994.02
820C	994.03
820D	994.04
820E	994.05
820F	994.06
820G	994.07
820H	994.08
820I	994.09
823	860
825	885
826	880
846	831
950	999



**PHYSICAL MEDICINE**

Old	New
715	715
735	735
736	736
745	745
750	750
new course	770
793	993
799	799
new course	999
736	
750	

**PHYSICAL THERAPY**

Old	New
500	100
501	301
502	302
503	303
510	310
600	304
602	402
603	403
604	404
605	405
607	407
608	485
609	450
610	451
611	452
612	400
613	486
614	487
615	415
616	416

**PHYSICS**

Old	New
401	101
402	102
411	111
412	112
413	113
420	120
531	231
532	232
533	233
505	435
506	436
535	437
536	438
602	472
645	501
643	503
641	506
637	507
638	508
639	509
634	514
new course	516
601	521
608	531
605	535
603	541
614	551
615	571
616	616

726	621
709	624
612	632
606	636
648	651
610	661
701	693
730	715
733	717
734	718
740	721
741	722
742	723
727	727
728	728
712	733
713	734
714	735
702	742
703	743
704	744
718	751
720	753
719	757
716	761
721	771
723	773
711	775
881	801
new course	816
840	821
841	822
817	827
818	828
819	829
805	834
806	835
824	847
825	848
813	850
851	857
852	858
833	863
834	864
820	871
821	872
822	873
823	875
846	876
847	877
860	880
861	881
862	882
843	885
844	886
950	999

**PHYSIOLOGICAL CHEMISTRY**

Old	New
311A	311.01
311B	311.02
312A	312.01
312B	312.02
601	601
602	602
603	613
611	611
612	612
614	734
632	540
633	545
702	830
715	725
720	706
793	793
812	855

815	850
821	821
822	822
823	823
825	835
898	898
950	999

**PHYSIOLOGICAL OPTICS**

Old	New
611	511
612	512
613	613
614	614
620	520
new course	795
701	693
715	715
716	716
730	730
731	731
732	732
801	801
802	802
803	803
950	999
new course	810
new course	811
new course	812
new course	813

**PHYSIOLOGY**

Old	New
410	110
506	311
507	312
601	516
602	517
604	604
605	605
623	623
new course	828
630	630
635	635
636	636
645	645
646	646
648	648
652	510
793	793
725	825
726	826
740	840
807	807
815	850
950	999

**PLANT PATHOLOGY**

Old	New
519	470
649	471
650	675
651	671
652	672

660	872
666	873
671	670
701-new	693
751	874
815	879
850	871
950	999

**POLISH**

Old	New
601	601
602	602
603	603
604	604
605	605
606	606
620	620
621	621

**POLITICAL SCIENCE**

Old	New
new course	378
401	100
507	265
508	200
509	225
510	205
530	245
599	275
600	594
601	565
605	610
606	611
607	505
609	506
611	668
612	650
613	545
614	612
615	615
616	616
618	520
621	670
622	671
623	672
624	573
625	626
627	540
628	627
633	677
634	676
635	575
636	630
637	655
640	656
649	658
650	635
651	636
652A	559
652B	560
652C	561
652D	562
652E	563
655	601
701	693
705	783
714	651
730	719
731	790
734	778
735	794
736	779

737	731
new course	700
new course	725
new course	745
new course	765
new course	775
new course	801
805	866
806	826
807	876
808	813
809	807
810	846
811	818
899	899
950	999

**PORTUGUESE**

Old	New
701	693
401	101
402	102
403	103
404	104
new course	794

**POULTRY SCIENCE**

Old	New
401	200
501	310
503	311
521	589
613	640
618	650
701	593
701	893
750	695
898	898
950	999

**PREVENTIVE MEDICINE**

Old	New
595	585
618	618
624	624
735	735
750	851
753	753
755	850
760	856
761	858
793	793(.01-.07)
799	799
810	810
new course	811
new course	812
820	820
new course	821
new course	822
850	860
851	861
852	862
898	898
899	899
950	999

## PSYCHIATRY

Old

New

737	737
793	793
794	794
795	795
799	799
800	850
950	999
new course	707
new course	708
new course	709
new course	710
new course	711
new course	712
new course	713
new course	714
new course	715
new course	716
new course	717
new course	718
new course	719
new course	720
new course	721
new course	722
new course	723
new course	740
new course	741
new course	742
new course	745
new course	746
new course	747
new course	749
new course	850
new course	751

## PSYCHOLOGY

Old

New

401	100
402	101
403	300
404	210
407	230
408	110
411	120
504	310
505	311
506	312
507	340
508	220
521	320
541	330
581	130
601	500
605	501
606	502
608	510
609	570
610	551
611	680
613	511
615E	683
622	684
623	620
626	600
628	671
629	610
631	631
632	670
633	633
635	624
636	681
637	621
639	622
640	541

644	623
646	505
648	632
650	693
655	601
659	540
663	550
666	552
667	504
670	661
671	682
674	650
676	560
677	520
678	530
679	630
680	611
683	651
687	503
689	542
690	640
695	531
700	599
703	794
704	512
713	612
718	865
782	880
788	788
802	811
803	849
804	824
805	812
806	867
new course	826
807	819
new course	807
new course	808
810	847
811	801
812	870
813	873
814	829
815	831
816	828
new course	816
new course	817
818	860
819	830
821	882
822	887
new course	822
823	884
824	854
825	810
827	881
new course	827
831	800
832	885
833	886
834	871
new course	835
new course	836
838	840
new course	839
840	837
841	802
new course	841
843	805
844	804
845	803
new course	846
new course	848
851	842
852	883
853	809
new course	853
854	838
855	823
new course	855
new course	856
new course	857
new course	858

new course	859
861	861
862	862
863	863
864	864
865	866
new course	872
new course	874
880	980
899	899
950	999
new course	660

## RADIOLOGY

Old

New

740	740
750	750
793	793
799	799
950	999

ROMANCE  
LINGUISTICS

Old

New

701	693
new course	794
822	831
847	811
848	812

RURAL  
SOCIOLOGY

Old

New

405	105
506	317
606	600
609	316
630	310
640	421
660	422
701	593
701	693
901	996
new course	996.01
new course	996.02
new course	996.03
new course	996.04
new course	996.05
new course	996.06
new course	996.07
new course	996.08
new course	996.09
new course	996.10
new course	996.11
new course	996.12
950	999

## RUSSIAN

Old

New

401	101
402	102
403	103
404	104

407	107
408	108
409	109
415	112
430	130
431	131
505	405
506	406
507	407
508	408
516	412
517	612
520	420
521	421
575	475
576	476
577	477
609	609
610	610
611	611
622	622
630	630
635	635
640	640
645	645
650	650
651	651
653	653
670	840
690	571
691	572
720	820
721	821
722	822
760	830
761	831
810	810
811	811
850	852
new course	652
new course	654
new course	655
new course	841
new course	842
new course	850
new course	851

## SERBO-CROATIAN

Old

New

601	601
602	602
603	603
604	604
605	605
606	606

SLAVIC  
LANGUAGES AND  
LITERATURE

Old

New

530	230
617	617
618	618
701	693
730	860
731	861
732	862
new course	783
830	875
new course	870
new course	871

880	880
950	999
new course	794
new course	881
new course	884
new course	981

## SOCIAL WORK

Old

New

new course	423
new course	425
new course	427
new course	507
511	340
599	323
600	325
601	327
627	503
637	505
675	489
679	509
699	493
701	520
705	530
706	532
708	534
709	522
712	603
713	550
714	552
720	540
730	562
731	564
762	570
764	572
775	585
801	640
802	694
823	554
824	650
826	652
837	662
843	526
851	624
857	840
858	841
859	842
862	630
865	574
866	670
867	672
870	600
875	685
881	660
899	899
950	999

## SOCIOLOGY

Old

New

401	101
402	202
407	220
505	290
506	280
507	201
510	204
518	206
520	330
530	250
562	207
600	430



601	432
604	480
612	464
614	590
620	208
621	403
622	470
623	405
624	509
625	410
626	411
627	608
629	680
630	650
638	395
643	661
644	462
645	465
648	467
650	440
660	488
663	401
668	687
676	463
677	560
678	492
680	434
700	693
700 A	693.01
700 B	693.02
700 C	693.03
700 D	693.04
700 E	693.05
700 F	693.06
700 G	693.07
700 H	693.08
700 I	693.09
700 J	693.10
700 K	693.11
700 L	693.12
706	752
707	704
714	894
725	615
808	859
861	868
864	818
865	891
899	899
900	895
950	999
new course	523
new course	666
new course	805

SPANISH

Old	New
401	101
402	102
403	103
404	104
410	105
415	162
416	163
517	421
518	401
519	404
521	402
522	403
531	422
532	423
570	271
605	605
607	623
608	624
610	625
611	721
612	722

SPEECH

Old	New
401	105
402	110
405	035
410	040 (.01-.05)
416	201
417	135
425	115
430	165
470	305
502	217
504	235
505	221
506	225
509	120
511	125
521	280
560	229
580	240
585	245
590	250
A	205
B	265
601	505
617	852
626	780
631	671
632	672
633	673
651	770
677	440
678	856
682	540
683	632
688	636
689	644
690	648
693	745
694	550
695	640
696	652
697	656
698	755
700	693
705	890

SURGERY

Old	New
715	715
736	736
new course	760
793	793
793 A	793.01
793 B	793.02
793 C	793.03
793 D	793.04
793 E	793.05
793 F	793.06
793 G	793.07
793H	793.08
new course	794
794 A	794.01
794 B	794.02
794 C	794.03
794 D	794.04
794 E	794.05
794 F	794.06
794 G	794.07
794 H	794.08
794 I	794.09
794 J	794.10
794 K	794.11
794 L	794.12
794 M	794.13
798	798

799	799
800	850
950	999

VETERINARY ANATOMY

Old	New
451	100
610	410
611	411
616	430
617	431
618	420
620	510
701	693
751	801
755	601
950	999
new course	810
new course	700

VETERINARY CLINICS

Old	New
721	510
722	510
723	510
724	511
725	512

VETERINARY MEDICINE

Old	New
620	510
701	693
719	600
720	600
730	520
731	521
732	522
735	530
736	531
738	540
740	532
750	610
950	999
new course	720
new course	721
new course	620
new course	621

VETERINARY PARASITOLOGY

Old	New
623	610
640	410
642	411
646	412
701	693
827	850
950	999

VETERINARY PATHOLOGY

Old	New
610	625
621	510
622	511
701	693
732	610
733	512
776	710
778	715
786	720
807	850
950	999

VETERINARY PHYSIOLOGY AND PHARMACOLOGY

Old	New
516	210
517	211
610	530
611	531
622	532
630	630
632	632
701	693
950	999
new course	780
new course	790
new course	791
new course	792
new course	799

VETERINARY PREVENTIVE MEDICINE

Old	New
452	200
453	201
620	510
701	693
730	785
740	610
742	512
745	511
750	616
800	850
810	810
950	999

VETERINARY SURGERY AND RADIOLOGY

Old	New
623	510
701	693
731	520
732	530
733	531
741	532
950	999

WELDING		740	588	new course.....	705	610	610	654	624
ENGINEERING		741	611	new course.....	755	620	620	656	622
		742	612			623	653	657	500
Old	New	743	720			624	621	658	211
415	240	744	721			629	625	701	693
449	489	745	722			631	611	701	694
610	430	748	784			632	630	832	811
640	488	754	799			633	612	833	812
646	640	841	884			634	623	896	896
649	589	950	999			636	650	897	897
701	610	new course.....	401			637	654	900	880
702	602	new course.....	630			640	661	900	881
703	631	new course.....	680			641	662	new course.....	841
739	501	new course.....	704			642	651	new course.....	851
						652	652	950	999
ZOOLOGY									
Old		New							
404	101	508	220						
605	640	607	660						



## Library Calendar 1968-69

The schedule of hours is subject to change. Consult specific library concerned for further information and summer hours.

### MAIN LIBRARY REGULAR SCHEDULE OF HOURS

#### Autumn, Winter, and Spring Quarters

Monday through Friday	7:45 a.m.—12 midnight
Saturday	8 a.m.—10 p.m.
Sunday	1 p.m.—12 midnight

#### Summer Schedule

Monday through Friday	7:45 a.m.—12 midnight
Saturday	8 a.m.—5 p.m.
Sunday	1 p.m.—6 p.m.

#### Between Quarter and Holiday Schedule

Monday through Friday	8 a.m.—5 p.m.
Saturday	8 a.m.—12 noon
Sunday	Closed

Departmental libraries' regular schedules are listed below. Between quarter and holiday hours vary. Schedules are posted in these libraries and also in the Main Library.

#### SUMMER QUARTER, 1968

June 18	Begin Summer Quarter hours.
July 4	Independence Day—All libraries closed.
August 30	Begin Between Quarter Schedule at 5 p.m.

#### AUTUMN QUARTER, 1968

August 31-	Labor Day Weekend—All libraries closed.
September 2	Begin Autumn Quarter hours.
September 25	

November 27

All libraries close at 5 p.m. except Health Center and Children's Hospital Libraries.

November 28

Thanksgiving Day—All libraries closed.

November 29-30

Holiday Schedule in effect.

December 1

Resume Regular Schedule in Main Library; Departmental Libraries' hours vary.

December 2

Resume Regular Schedule in all libraries.

December 14

Begin Between Quarter schedule at 5 p.m.

#### WINTER QUARTER, 1969

December 25

Christmas Day—All libraries closed.

January 1

New Year's Day—All libraries closed.

January 2

Begin Winter Quarter hours.

March 15

Begin Between Quarter schedule at 5 p.m.

#### SPRING QUARTER, 1969

March 25

Begin Spring Quarter hours.

April 6

Easter Day—All libraries follow regular Sunday schedule.

May 30

Memorial Day—All libraries follow regular Friday schedule.

June 7

Begin Between Quarter schedule at 5 p.m.

#### SUMMER QUARTER, 1969

June 17

Begin Summer Quarter hours.

July 4

Independence Day—All libraries closed.

August 30

Begin Between Quarter schedule at 5 p.m.

### ANCILLARY LIBRARIES—Autumn, Winter, and Spring Quarters

	Mon.-Thurs.	Fri.	Sat.	Sun.
Aero-Civil Engr., 322 Civil Aero. Engr. Bldg.	8-5; 7-9	8-5	8-12 noon	Closed
Agriculture, 45 Agricultural Admin. Bldg.	8-10	8-5	9-1	Closed
Agronomy Dept., 111 Townshend Hall	8-12; 1-5	8-12; 1-5	1-5	Closed
Botany & Zoology, 200 Botany & Zoology Bldg.	8-10	8-10	8-4:30	2-10
Brown, 103 Brown Hall	8-5; 7-10	8-5	9-12 noon	Closed
Buckeye Village	3-5; 7-11	3-5; 7-11	12 noon-11 p.m.	12 noon-11 p.m.
Chemistry, 310 McPherson Chem. Lab.	8-10	8-5	8-5	2-6
Children's Hospital, 561 S. 17th St.	8:30-9:30	8:30-9:30	9-5	2-9:30
Commerce, 204 Page Hall	8-10	8-10	8-5	2-10
Davis Welding, 200 Industrial Engr. Bldg.	8-5	8-5	9-12 noon	Closed
Education, 060 Arps Hall	7:30-10	7:30-10	8-5	2-6
Electrical Engineering, 162 Caldwell Lab	8-5; 7-10	8-5	8-12 noon	Closed
English Dept., 15-15C Derby Hall	8-5; 7-10	8-5	9-12 noon	Closed
Health Center, 101 Hamilton Hall	8-10	8-10	8-5	2-10
Home Economics, 325 Campbell Hall	8-10	8-5	8-12 noon	Closed
Journalism, 200 Journalism Bldg.	8-10	8-5	8-12 noon	5-10
Law, 219 Law Bldg.	7:45-12	7:45-12	8-10	1-12
Materials Engr., 197 Watts Hall	8-5; 7-10	8-5	9-12 noon	Closed
Mathematics, 010 Mathematics Bldg.	8-10	8-5	8-12 noon	Closed
Mechanical Engineering, 2071 Robinson Lab.	8-5	8-5	8-12	Closed
Microbiology, 7 Cockins Hall	8-5; 7-10	8-5	9-12 noon	Closed
Music, 101 Hughes Hall	8-10	8-5	9-4	6-10
Orton, 100 Orton Hall	8-5; 7-10	8-5	9-5	2-6
Pharmacy, 207 Pharmacy Bldg.	8-5; 7-10	8-5	9-12 noon	Closed
Physics, 202 Physics Bldg.	8-10	8-5	8-5	Closed
Pomerene-Women's Physical Education, 307 Pomerene Hall	8-5; 7-10	8-5	Closed	Closed
Social Work, 400 Stillman Hall	8-10	8-5	8-5	2-10
Topaz, 114 Optometry Bldg.	8-5	8-5	8-12	Closed
Veterinary Medicine, 229 Sisson Hall	8-5; 7-10	8-5	9-12 noon	2-6

# University Calendar for 1968-69

## Summer Quarter, 1968

May 1	Last day applications received (Wed.)
May 3	Schedule cards for Summer Quarter may be obtained in the Registrar's Office (Fri.)
May 6	Schedule cards for Summer Quarter may be filed in the college offices (Mon.)
May 18	Last day for filing Summer Quarter schedule cards (Sat. noon)
June 1	Application deadline — Graduate School students (Sat.)
June 13	Last day for placement testing (Thurs.)
June 14	Last day for payment of fees before classes begin for the First Term and the Quarter (Fri.)
June 15	Last day for completing registration (Sat. noon)*
June 17	Welcome Program for all new students (Mon.)
June 18	Classes begin, 8 a.m. (Tues.)
July 1	Last day for withdrawal from the University for the First Term with any refund of fees (Mon.)
July 4	Legal Holiday — No classes — Offices closed (Thurs.)
July 16	Last day for withdrawal from the University for the Quarter with any refund of fees (Quarter students) (Tues.)
July 23	Last day for payment of Second Term fees before the Second Term classes begin (Tues.)
July 23-24	Final examinations — First Term (at regular class hour) (Tues. and Wed.)
July 24	First Term ends, 12 Midnight (Wed.)
July 25	Second Term begins, 8 a.m. (Thurs.)
July 30	Schedule cards available for the Autumn Quarter (Tues.)
July 31	Schedule cards for the Autumn Quarter may be filed in the college offices (Wed.)
August 9	Last day for withdrawal from the University for the Second Term with any refund of fees (Fri.)
August 28-30	Final Examinations for the Quarter (Wed., Thurs., and Fri.)
August 29-30	Final Examinations — Second Term (at regular class hour) (Thurs. and Fri.)
August 30	Summer Convocation (Commencement) 9 a.m., St. John Arena (Fri.)
August 30	Summer Quarter ends, 12 Midnight (Fri.)
August 31	Last day for filing Autumn Quarter schedule cards (Sat. noon)

## Autumn Quarter, 1968

July 30	Schedule cards available for the Autumn Quarter (Tues.)
July 31	Schedule cards for the Autumn Quarter may be filed in the college offices (Wed.)
August 1	Last day applications received—Undergraduate students (Thurs.)
August 31	Last day for filing Autumn Quarter Schedule cards (Sat. noon)
September 2	Legal Holiday—Labor Day—No classes—Offices closed (Mon.)
September 3	Application deadline—Graduate School students (Tues.)
September 13	Last day for placement testing (Fri.)
September 16	Last day for completing registration (Mon.)*
September 20	Last day for payment of fees (Fri.)
September 23-24	Welcome Program for all new students (Mon. and Tues.)
September 25	Classes begin 8 a.m. (Wed.)
October 22	Last day for withdrawal from the University with any refund of fees (Tues.)
October 28-29	Schedule cards for Winter Quarter may be obtained in the college offices (A-K on Mon. and L-Z on Tues.)
October 30-31	Schedule cards for Winter Quarter may be filed in the college offices (Wed., Thurs., and Fri.)
November 1	Last day for filing Winter Quarter schedule cards (Sat. noon)
November 9	Legal Holiday—Veterans' Day—Classes as usual—Offices open (Mon.)
November 11	Legal Holiday—Thanksgiving—No classes—Offices closed (Thurs.)
November 28	Student vacation—No classes—Offices open (Fri. and Sat.)
November 29-30	Last day of regularly scheduled classes (Fri.) (No classes Saturday, December 7)
December 6	Final Examinations (Mon., Tues., Wed., Thurs., and Fri.)
December 9-13	Autumn Convocation (Commencement) 9:30 a.m., St. John Arena (Sat.)
December 14	Autumn Quarter ends, 12 midnight (Sat.)
December 14	Legal Holiday—Christmas—Offices closed (Wed.)

## Winter Quarter, 1969

October 28-29	Schedule cards for Winter Quarter may be obtained in the college offices (A-K on Mon. and L-Z on Tues.)
October 30-31	Schedule cards for Winter Quarter may be filed in the college offices (Wed., Thurs., and Fri.)
November 1	Last day for filing Winter Quarter Schedule cards (Sat. noon)
November 8	Last day applications received—Undergraduate students (Fri.)
November 15	Application deadline—Graduate School students (Mon.)
December 2	Last day for placement testing (Fri.)
December 13	Last day for completing registration (Mon.)*
December 16	Last day for payment of fees (Mon.)
January 1	Legal Holiday—New Year's Day—Offices closed (Wed.)
January 2	Welcome Program for all new students (Thurs.)

Jan. 2



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January 6	Classes begin 8 a.m. (Thurs.)
January 26	Last day for withdrawal from the University with any refund of fees (Wed.)
February 3-4	Schedule cards for the Spring Quarter may be obtained in college offices (A-K on Mon. and L-Z on Tues.)
February 5-7	Schedule cards for Spring Quarter may be filed in college offices (Wed., Thurs., and Fri.)
February 12	Legal Holiday—Lincoln's Birthday—Classes as usual—Offices open (Wed.)
February 15	Last day for filing Spring Quarter schedule cards (Sat. noon)
February 22	Legal Holiday—Washington's Birthday—Classes as usual—Offices open (Sat.)
March 7	Last day of regularly scheduled classes (Fri.) (No classes Saturday, March 8)
March 10-14	Final Examinations (Mon., Tues., Wed., Thur., and Fri.)
March 15	Winter Convocation (Commencement) 9:30 a.m., St. John Arena (Sat.)
March 15	Winter Quarter ends, 12 midnight (Sat.)

## Spring Quarter, 1969

February 3-4	Schedule cards for the Spring Quarter may be obtained in college offices (A-K on Mon. and L-Z on Tues.)
February 5-7	Schedule cards for the Spring Quarter may be filed in college offices (Wed., Thurs., and Fri.)
February 15	Last day for filing Spring Quarter schedule cards (Sat. noon)
February 15	Last day applications received—Undergraduate students (Sat.)
March 1	Application deadline—Graduate School students (Sat. noon)
March 13	Last day for placement testing (Thurs.)
March 14	Last day for completing registration (Fri.)*
March 21	Last day for payment of fees (Fri.)
March 24	Welcome Program for all new students (Mon.)
March 25	Classes begin, 8 a.m. (Tues.)
April 21	Last day for withdrawal from the University with any refund of fees (Mon.)
May 2	Schedule cards for Summer Quarter may be obtained in the college offices (Fri.)
May 5	Schedule cards for Summer Quarter may be filed in the college offices (Mon.)
May 8	Free Day—No classes after 10 a.m. (including evening classes)—Undergraduate colleges—Offices will remain open (Thurs.)
May 17	Last day for filing Summer Quarter schedule cards (Sat. noon)
May 29	Last day of regularly scheduled classes (Thurs.) (No classes Saturday, May 31)
May 30	Legal Holiday—Memorial Day—No classes—Offices closed (Fri.)
June 2-6	Final examinations (Mon., Tues., Wed., Thurs., and Fri.)
June 7	Spring Convocation (Commencement) 9 a.m., O.S.U. Stadium (Sat.)
June 7	Spring Quarter ends, 12 midnight (Sat.)

## Summer Quarter, 1969

May 1	Last day applications received—Undergraduate students (Thurs.)
May 2	Schedule cards for Summer Quarter may be obtained in the college offices (Fri.)
May 5	Schedule cards for Summer Quarter may be filed in the college offices (Mon.)
May 17	Last day for filing Summer Quarter schedule cards (Sat. noon)
June 2	Application deadline—Graduate School students (Mon.)
June 12	Last day for placement testing (Thurs.)
June 13	Last day for completing registration* and last day for payment of fees before classes begin 10: the First Term and the Quarter (Fri.)
June 16	Welcome Program for all new students (Mon.)
June 17	Classes begin, 8 a.m. (Tues.)
June 30	Last day for withdrawal from the University for the First Term with any refund of fees (Mon.)
July 4	Legal Holiday—No classes—Offices closed (Fri.)
July 14	Last day for withdrawal from the University for the Quarter with any refund of fees (Mon.)
July 18	Last day for payment of Second Term fees before the Second Term classes begin (Fri.)
July 21-22	Final Examinations—First Term (at regular class hour) (Mon. and Tues.)
July 22	First Term ends, 12 midnight (Tues.)
July 23	Second Term begins, 8 a.m. (Wed.)
July 30	Schedule cards available for the Autumn Quarter (Wed.)
July 31	Schedule cards for the Autumn Quarter may be filed in the college offices (Thurs.)
August 5	Last day for withdrawal from the University for the Second Term with any refund of fees (Tues.)
August 25-26	Final Examinations—Second Term (at regular class hour) (Mon. and Tues.)
August 28	Last day for regularly scheduled classes (Tues.)
August 27-29	Final Examinations for the Quarter (Wed., Thurs., and Fri.)
August 30	Summer Convocation (Commencement) 9 a.m., St. John Arena (Sat.)
August 30	Summer Quarter ends, 12 midnight (Sat.)
August 30	Last day for filing Autumn Quarter schedule cards (Sat. noon)

\* Except newly admitted Graduate School students. The final date for these students will extend to the last day before the beginning of classes for the Quarter.





## Committee on Institutional Cooperation

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### Member Institutions

University of Chicago  
University of Illinois  
Indiana University  
University of Iowa  
University of Michigan  
Michigan State University  
University of Minnesota  
Northwestern University  
Ohio State University  
Purdue University  
University of Wisconsin

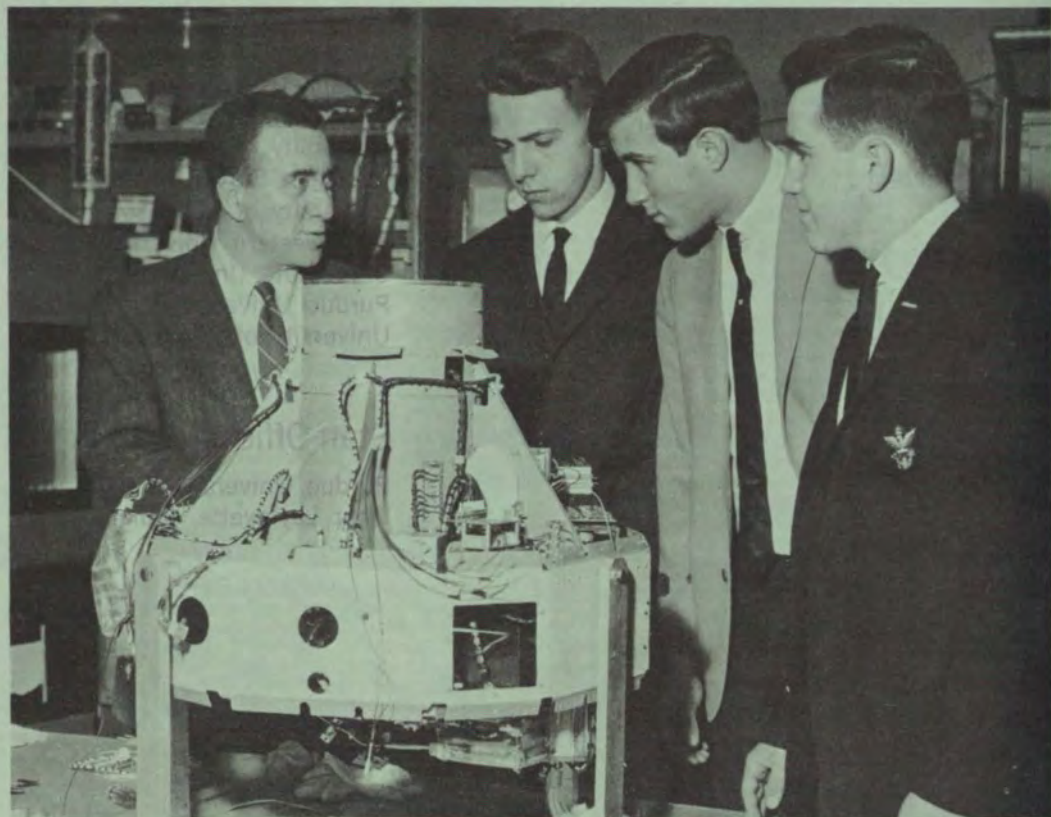
### Staff Offices

Purdue University  
West Lafayette, Indiana 47907

Above left: Language Laboratory at Indiana University

Above right: Part of CIC student group enrolled in summer program in Mexico

Below: Noted physicist James A. Van Allen with students at University of Iowa, one of eleven institutions participating in the CIC Traveling Scholar Program for graduate students.





### Pattern for Progress

The Committee on Institutional Cooperation (CIC) was established in 1958 by the presidents of the participating universities as a means of expanding opportunities in certain highly specialized areas of instruction, research, and public service.

The mechanism of interinstitutional cooperation helps in augmenting the general effort in higher education and in preventing unnecessary duplication in those areas where resources are scarce or extraordinarily costly.

The member institutions of the CIC are the Big Ten universities and the University of Chicago. The CIC is composed of high-level officials of these institutions acting as a board of representatives for consideration and evaluation of cooperative endeavors. A small staff is employed to effectuate CIC decisions and to assist groups interested in the development of cooperative projects.

In operative terms, the CIC is a faculty-oriented association; that is, the faculty members of the participating institutions are the source and initiators of many proposals for cooperative action. Suggestions for new activities may also originate with university administrative groups, the CIC and its staff, or with outside agencies such as foundations or government agencies. The CIC awaits such proposals and formally acts upon them only after they have been developed as project plans by faculty or administrative working groups. However, to facilitate interuniversity discussion of ideas during the developmental period, the CIC uses the mechanism of the "seed grant"—an allocation of a small sum of money to cover travel and other expenses involved in holding a

meeting of an interinstitutional faculty group. The seed-grant resource provides an opportunity for exploratory discussion not readily available prior to adoption of the concept by the CIC. The program, made possible through funds awarded by the Carnegie Corporation of New York, has demonstrated that important cooperative projects can come from small beginnings, provided there is a catalyst available to assist in the process.

It should be noted that all projects are developed and conducted on a strictly voluntary basis. Participation in any CIC program is thus always on the highest feasible level of interest, there being no requirement that all eleven institutions must agree to participate before a program is launched. If one or more universities wish to forego participation in a particular project, this remains their prerogative while at the same time it does not deter the others from going ahead. This voluntary principle ensures that the status of each university as an independent and autonomous institution will in no way be diminished.

Projects and programs conducted by the CIC have gained the attention of educators and officials throughout this country and abroad. The CIC helps in this process of communication with educational and governmental groups by regularly issuing reports and newsletters describing current activities. In general, both in its substantive programs and its communications function, the CIC acts as an intermediary agency drawing on the resources of eleven major institutions of higher learning to identify areas in which there is potential for major innovation through cooperative action.

## List of Unique Programs and Courses at CIC Institutions Summer, 1968

The CIC annually sponsors a number of outstanding and unique institutes. During the summer of 1968 the following institutes will be offered: Far Eastern Languages at The Universities of Michigan and Wisconsin, Slavic Language and Area Studies at The University of Michigan, South Asian Language and Area Studies at Michigan State University, and Linguistics at the University of Illinois. In addition to the rotating institutes, the following courses were considered by the CIC Summer Session Committee to be unique offerings of the cooperating institutions. This list is only descriptive and is provided to assist students in selecting a summer program in an area which otherwise may be limited in the summer. Interested persons are advised to write the Dean or Director of Summer Sessions of the respective institution for complete official information or the official designated in the course description.

Courses designated "Graduate" are open only to graduate students. Those not so restricted are open to both undergraduate and graduate students.

### UNIVERSITY OF ILLINOIS URBANA, ILLINOIS JUNE 17-AUGUST 10, 1968

#### Library Science

433—Sec. H. Advanced Subject Bibliography. Problems in acquisition, care, and library use of maps. Graduate.

Prerequisite: consent of instructor, William Easton.

June 17-July 12.

450—Sec. P. Advanced Studies in Librarianship. Organization and care of rare book collections in large public and scholarly libraries. Graduate.

Prerequisite: consent of instructor, James M. Wells.

Offered at Newberry Library, 60 W. Walton Street Chicago, Illinois

June 17-July 12.

#### Linguistics Institute

Basic courses in descriptive, historical, applied, mathematical linguistics. Advanced offerings on theory of syntactic, phonological, and semantic analysis. Seminars for advanced graduate students.

June 17-August 10.

### INDIANA UNIVERSITY BLOOMINGTON, INDIANA JUNE 19-AUGUST 24, 1968

#### Folklore

Folklore Institute. Several courses dealing with a survey of literate and nonliterate peoples. Emphasis in 1968 given to American and Turkish folklore.

June 19-August 19.

#### Geology

Field Geology in Rocky Mountains (Montana) G429.

June 8-July 27, and July 21-August 24.

#### Language Study Tours

Polish Language Study Tour P450, and Russian Language Study Tour R450. Five weeks of intensive study and five-week tour. Fluency of language essential.

June 19-August 24.

#### Latin

Intensive Program for Teachers of Latin. Two courses requiring intensive study of materials and bibliography suitable for high school curriculum.

June 19-July 17.



## Library Science

Graduate Library School. Two courses dealing with information systems and retrieval. One course pertaining to bibliography of Africa south of the Sahara. Graduate.

June 19-August 9.

## Music

Vocal Music in Latin America M629. Music from aboriginal times to the present with emphasis on useful repertory. Graduate.

June 19-August 9.

Electronic Center for Mathematical and Automatical Music T594. Laboratory experiments related to contemporary acoustical and musical developments including tone production and the tonal spectrum. Graduate.

June 19-August 9.

## Optometry

Geometric Optics I V321. Optics of lenses, prisms, and mirrors. Emphasis on application in visual science. Trigonometry essential.

June 19-August 9.

## Police

Police Administration. Two courses dealing with principles underlying social organizational control devices, legal systems, and rules affecting admissibility.

June 19-August 9.

**THE UNIVERSITY OF IOWA**  
IOWA CITY, IOWA  
JUNE 12-AUGUST 6, 1968

## Biology

Iowa Lakeside Laboratory. Course offerings in Field Biology, Helminthology, Morphology of Algae, Aquatic Ecology, Field Entomology. Professor: Richard V. Bovbjerg.

June 10-July 12, and July 15-August 16.

## English

International Writers' Workshop 8:490. A special course for the foreign writer to learn about the current literary scene throughout the world. Professor: Paul Engle. Graduate.

June 12-August 6.

## Geography

Tri-State Field Seminar in Geography (jointly sponsored by Departments of Geography at Iowa, Minnesota, and Wisconsin). Provides guided experience in the formulation and study of individual field problems in one or two branches of geography. Graduate.

August 26-September 15.

## Geology

Geology Field Techniques 12:113. Geology field course, Park City, Utah. 6 weeks. Training in the description and mapping of rock units and geologic structures in the Wasatch and Uinta Mountains. A professional level course for advanced graduates and graduates. Professor: Richard Hoppin.

June 16-July 28.

## Language

Translation Workshop 8:488. A course for those interested in the translation of foreign texts into English of high literary merit. Professors: Peter Clothier and Paul Engle.

June 12-August 6.

## Philosophy and Religion

Great Books of China and India 39:163. Advanced course for serious students of religion and philosophy. Book reports and term paper. No prerequisite. Professor: Y. P. Mei.

June 12-August 6.

The Genius of American Religious Institutions 32:176. A delineation of outstanding characteristics of the contemporary religious scene in the United States. Professor: Sidney E. Mead.

June 12-August 6.

Iowa Summer Pastoral Care Institute 32:255. Emphasis on pastoral relationships with patients to help clergymen gain insights and skills which will make their ministry more meaningful. Professor: David Belgum. Graduate.

June 3-July 12.

**UNIVERSITY OF MICHIGAN**  
ANN ARBOR, MICHIGAN  
JUNE 24-AUGUST 17

## History of Art

654. Titian and Tintoretto. (2) Tu. Th. 3-5. 207 Tappan. Professor: Harold E. Wethey.

June 24-August 17.

**Spanish**

809. Studies of Colonial and Nineteenth Century Spanish-American Literature. (2) Tu. W. Th. F. 12. 2075 Frieze Bldg. Professor: Jose Durand.

June 24-August 17.

**Musicology**

546. Proseminar in Later Nineteenth Century Styles. (2) Tu. Th. 2:30-4:30.

2044 SM. Professor: Louise Cuyler.

June 24-August 17.

**Psychology**

583. (Soc. 516). Introduction to Survey Research I. (2) T. W. Th. F. 8-10. Professor: Donald Pelz.

June 24-July 19.

584. (Soc. 517). Introduction to Survey Research II. (2) Tu. W. Th. F. 8-10. Professor: Donald Pelz.

July 22-August 16.

**UNIVERSITY OF MINNESOTA  
MINNEAPOLIS, MINNESOTA  
JUNE 17-AUGUST 24, 1968**

**Biology**

Lake Itasca Biology Session. Variety of courses designed to make use of ecological area with prairies, hardwoods, and coniferous habitats as well as aquatic habitats.

June 10-August 27.

**Language**

Institute in Scandinavian Studies. Courses will be offered in intensive beginning Swedish with emphasis in conversational skills and in Scandinavian literature. Professors: Nils Hasselmo, Lillemor Saether.

June 17-August 24.

**Library Science**

Library Management Workshop. A workshop in scientific library management conducted by Miss Jewel C. Hardkopf. Prospective students who have Master's degrees in library science and several years of supervisory experience in library may apply.

August 5-30.

**Music**

Music 60. The development of early and symphonic music. Demonstration and performance by

Minneapolis Symphony Orchestra. Covers theory, literature, and performance. Undergraduate.

June 17-August 24.

**Public Health**

Public Health 231-232. Ground water development with field work. Development of ground water sources for public water supplies. Graduate. Professors: Richard G. Bond, Rexford D. Singer.

June 17-August 24.

Public Health 138. Hospital Engineering Problems. Application of environmental engineering, sanitation, and maintenance principles and techniques relative to planning, administration, and operation of hospitals. Professor: Richard G. Bond. Graduate.

July 22-August 24.

**NORTHWESTERN UNIVERSITY  
EVANSTON, ILLINOIS  
JULY 8-JULY 19, 1968**

**Music**

Class Piano Conference 536-C17. A conference designed for classroom teachers, studio teachers at all levels, and music supervisors to reveal the settings and skills appropriate for piano classes from third grade through college level. Meets five hours daily. 3 quarter hours credit. Professor: Dr. Guy Duckworth.

July 8-July 19.

**THE OHIO STATE UNIVERSITY  
COLUMBUS, OHIO  
JUNE 18-AUGUST 30, 1968**

**Anatomy**

Anatomy 730: Radiological manifestations; study of problems in the visualization of various regions of the human body. Professional credit only. Dean, College of Medicine.

June 1-30; July 1-31; August 1-30.

**Archaeological Training Expedition**

Anthropology 664: Joint expedition of The Ohio State University and the Ohio Historical Society Museum to excavate prehistoric sites in Ohio. Special field work training. Required full time of student. Chairman, Department of Anthropology.

June 18-July 24; July 25-August 30.



### Biology Lake Erie

The Franz Theodore Stone Laboratory, Put-In-Bay, Lake Erie, Ohio—Course offerings in aquatic biology dealing with the ecology of a) physical and chemical factors, and b) biota of fresh water Lake Erie. Dean, College of Biological Sciences.

June 18-July 24; July 25-August 30.

### Geology

Summer Institute in Geology and the Nature of Science. Program of study and teaching in Geology, which includes the broader perspective of the nature and development of science. Open for both undergraduate and graduate credit to junior and senior high school teachers and supervisors: Chairman, Department of Geology.

June 18-August 30.

Geology Field Program—Geology 581: Essentials of field observation, mapping, and geological study; field camp located at Ephraim, Utah. Full time of student required. Chairman, Department of Geology.

June 18-July 24; July 25-August 30.

### Journalism

A core of special courses for liberal arts graduates seeking to qualify themselves for graduate work in journalism: Director, School of Journalism.

June 18-August 30.

### Languages

Intensive programs in Greek, Arabic, Hebrew, and Latin. Full time of student required. Dean, College of Humanities.

June 18-August 30.

### Medical Education

Anatomy 840: Study of all phases of medical education including observation of methods, evaluation, curriculum design, student selection, and research. Graduate credit only. Dean, College of Medicine.

June 18-August 30.

### Avian Physiology

Physiology 907.09: Study of the anatomical and functional differences between birds and mammals; mechanisms used by two classes of homeotherms in meeting physiological stresses; experience with birds as laboratory and experimental animals. Graduate credit only: Dean, College of Medicine.

June 18-August 30.

### Study Tour to Poland

Similar to USSR Language Study Tour. Includes five weeks of intensive language training on campuses and five- to six-week tour of Poland during which only Polish may be spoken: Chairman, Department of Slavic Languages and Literatures.

June 18-August 30.

## UNIVERSITY OF WISCONSIN MADISON CAMPUS

### Art

Art History 180-444-2. The Craft of Old Master Drawings. Studies in the technical resources of master draftsmen, from the late middle ages to modern times and their art historical and aesthetic significance in master works of drawing. Prerequisite: consent of the instructor, Mr. Watrous.

June 24-August 17.

### Behavioral Science and Law

Summer Institute in Behavioral Science and Law. Subjects in the application of behavioral science to the study of the role of law in society. Four graduate level courses:

Sociology 641—Sociology of Law  
Harry V. Ball

Law 970—Law and Social Change  
Lawrence M. Friedman

Political Science 863—Law and the Political Order  
Stuart A. Scheingold

Economics 961—Law and Economics Regulation  
Mark S. Massel

Non-credit seminars in Law and Anthropology, Law and Psychiatry, the legal profession, legal dimensions of poverty. Graduate.

June 24-August 16.

### Language

CIC Far Eastern Language Institute. A basic program in Chinese and Japanese Languages. First through third year courses offered.

Admission: Evaluated by a CIC Committee. Credit honored by all CIC departments. Advanced courses in Chinese and Japanese will be conducted at the University of Michigan Campus. Ten weeks.

June 11-August 17.

## UNIVERSITY OF WISCONSIN MILWAUKEE CAMPUS

### Music

Music 660-215-5. Studies in Music History. 1 credit. Chamber music survey for strings and woodwinds from 18th century to 20th century.

Music 660-316-1. Interpretation and Stylistic Problems. 2 credits. Various aspects of ensemble performance technique for strings, woodwind, and keyboard students, and music educators.

Instruction by the Fine Arts Quartet and New York Woodwind Quintet.

June 24-August 3.

### Library

Law Library Institute

544-998-4. Legal Bibliography. 2 credits.

544-998-2. Law Library Administration. 2 credits.

Institute designed for practicing law librarians and other librarians intending to specialize in law librarianship.

July 15-August 10.

### Geology

Field Geology. 420-451-7. 4 credits.

Advanced Field Geology. 420-453-3. 4 credits.

Geologic field work in Western United States, Canada, and possibly Alaska.

June 20-August 15.

## MICHIGAN STATE UNIVERSITY EAST LANSING, MICHIGAN JUNE 17-AUGUST 30

### Art

University Summer Art School at Leland, Michigan. Five weeks of concentrated painting experience in a commercial fishing center where the docks, boats, and fishermen provide excellent material for the painter.

### Biology

The Kellogg Biological Station at Gull Lake, Michigan. Ten-week session of instruction in botany, entomology, zoology, parasitology, microbiology, and geography. Emphasis on field study.

### Glaciology

Summer Institute of Glaciological Sciences. Held on and near the Juneau Icefield of coastal Alaska, the Institute offers seven weeks of intensive field study in the glaciological and arctic sciences.

### Language

Inter-University Rotating Summer Program in South Asian Studies (in cooperation with CIC institutions). Courses in area studies and languages. Brochures available at CIC institutions.



Chemistry Lecture at Michigan State University



# Academic Planning Guide

The material presented in this Academic Planning Guide is to aid the student and his adviser in planning the student's academic program for the coming year. Courses shown are those that will be offered each quarter during the academic year. The student will find listed the times at which courses are expected to be offered and the instructors who are expected to teach them.

This listing is not to be used by the student in scheduling classes for each quarter. Instead, a quarterly Master Schedule will be used in scheduling. The quarterly Master Schedule will be prepared and distributed, along with schedule cards, to all students prior to the beginning of each quarter.

For Autumn Quarter registration, the quarterly Master Schedule and schedule cards will be mailed to the home address of those students not attending classes during the Summer Quarter. For enrolled students, registration materials will be available in the student's college office on the following dates:

Summer Quarter 1968	May 3, 1968
Autumn Quarter 1968	July 30, 1968
Winter Quarter 1969	October 28, 1968
Spring Quarter 1969	February 3, 1969

Instructions for registering and registration deadlines will be included in the appropriate quarterly Master Schedule and supplemented by announcements appearing in the student newspaper, the Lantern.

Adviser Approval Forms are included at the end of this Academic Planning Guide to assist those students required to have an adviser's signed approval of courses scheduled. The student should use Adviser Approval Form to obtain adviser approval of his Autumn Quarter schedule in advance of the summer vacation period. During Summer Quarter, when the student or his adviser may be away from campus, securing such approval could be difficult or impossible.

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## EXPLANATORY NOTES

The information listed in the Academic Planning Guide is organized in alphabetical order by department. Within each department listing are the course offerings for each quarter, Summer through Spring.

### The course offering listings indicate by column:

Course Number (Course), Credit Hours (CRDT), Section Descriptors (SEC), Course Meeting Days (DAYS) and time (TIME), and Instructor if assigned. Class sections which meet during one normal class period (48-minute period starting on the hour) have only the starting time indicated. Both the beginning and ending times are indicated for sections which either begin or end outside one normal class period. Classes meeting 7:00 p.m. and after have a "P" listed following the meeting time to distinguish them from a.m. classes. An upper case letter following the course number refers to the lower case letters in the Courses of Instruction.

### The following codes are used as section descriptors:

Code	Descriptor
B	Laboratory
C	Conference
D	Lecture/Discussion
F	Field Trip
I	Individual Study/Research
K	Clinical Experience
L	Lecture
P	Practice/Rehearsal
R	Recitation
S	Seminar
W	Work Experience/Student Teaching

The codes listed below indicate any special scheduling restrictions that apply to a section. These codes, listed in the second and third column positions of the Section Descriptors (SEC) when they apply, are as follows:

Code	Scheduling Restriction
1	Honor Section
2	Enrollment limited to department majors
3	Enrollment limited to graduate students
4	Enrollment limited to new OSU students
5	Enrollment limited to part-time students
6	Enrollment limited to transfer students
7	Enrollment limited to Engineering students
8	Enrollment limited to Veterinary Medicine students
9	Enrollment limited to Nursing students
10	Instructor's permission required
11	Enrollment limited to Pharmacy students
12	Enrollment limited to women only
13	Enrollment limited to men only

The student is responsible for meeting all prerequisites for each course scheduled as specified in the Courses of Instruction. The Courses of Instruction section of this book should be consulted for each course being considered to ensure that the student will have met all of the required prerequisites for each course prior to scheduling. No attempt has been made to list course prerequisites in the Academic Planning Guide.



# Accounting

No.	Crd't.	Sec.	Day	Time	Instructor
SUMMER QUARTER					
211	5	L	MTWRF	8	
		L	MTWRF	10	
212	5	L	MTWRF	9	
		L	MTWRF	11	
221	5	L	M W F	8	
		B	T R	8	-10
523	4	L	MT RF	9	
524	4	L	MT RF	10	
525	4	L	MT RF	8	
526	4	L	MT RF	11	
531	3	L	M W F	10	
		B	T R	11	
627	5	L	MTWRF	9	
628	4	L	M W	9	-11
689	15	W	ARR		
693	2- 5	C	ARR		
712	3	S	M W F	9	
845	3	S	ARR		
861	3	S	ARR		
998		I	ARR		
999		I	ARR		
SUMMER 1ST TERM					
844	3	S	MT	8	
998		I	ARR		
SUMMER 2ND TERM					
693	2- 5	I	ARR		
998		I	ARR		
999		I	ARR		
AUTUMN QUARTER					
201	5	L	MTWRF	11	
211	5	L	MTWRF	8	
		L	MTWRF	10	
		L	MTWRF	11	
		L	MTWRF	1	
		L	MTWRF	4	
		L	M R	7	- 910P
		L	MTWRF	1	
212	5	L	MTWRF	9	
		L	MTWRF	2	
221	5	L	M W F	8	
		B	T R	8	-10
		L	M W F	11	
		B	T R	10	-12
		L	M W F	1	
		B	T R	1	- 3
415	5	L	MTWRF	3	
523	4	L	MT RF	9	
		L	MT RF	10	
524	4	L	MT RF	2	
525	4	L	MT RF	9	
		L	MT RF	11	
693	3	C	F	9	-11
526	4	L	T R	7	- 845P
531	3	L	M W F	2	
		B	T R	2	- 4
		L	T R	7	- 915P
627	5	L	MTWRF	3	
628	4	L	M W	9	-11
689	15	W	ARR		
693	2- 5	C	ARR		
711	3	L	M W F	11	
811	3	D	T R	1	- 230
		D	T R	7	- 815P
844	3	S	T R	7	- 815P
845	3	S	R	6	- 915P
861	3	S	M W	4	- 6
998		I	ARR		
999		I	ARR		
WINTER QUARTER					
211	5	L	MTWRF	8	
		L	MTWRF	9	
		L	MTWRF	11	
		L	MTWRF	2	
		L	M R	7	- 910P
212	5	L	MTWRF	10	
		L	MTWRF	1	
		L	MTWRF	10	
		L	M R	7	- 910P
221	5	L	M W F	8	
		B	T R	8	-10
		L	M W F	11	
		B	T R	10	-12
523	4	L	MT RF	10	
		L	MT RF	11	

524	4	L	MT RF	9	
		L	MT RF	10	
525	4	L	MT RF	1	
526	4	L	MT RF	3	
531	3	L	M W F	2	
		B	T R	1	- 3
		L	M W F	2	
		B	T R	1	- 3
627	5	L	MTWRF	3	
		L	T R	7	- 910P
628	4	L	M W	9	-11
689	15	W	ARR		
693	2- 5	C	ARR		
712	3	S	M W F	3	
831	3	S	M W F	9	
846	3	S	T R	730- 845P	
847	3	S	R	7 - 930P	
851	3	S	ARR		
854	3	S	M W F	10	
861	3	S	ARR		
998		I	ARR		
999		I	ARR		
SPRING QUARTER					
201	5	L	MTWRF	3	
211	5	L	MTWRF	9	
		L	MTWRF	1	
		L	MTWRF	4	
212	5	L	MTWRF	8	
		L	MTWRF	10	
		L	MTWRF	11	
		L	MTWRF	2	
		L	M R	7	- 910P
221	5	L	M W F	8	
		B	T R	8	-10
		L	M W F	11	
		B	T R	10	-12
		L	M W F	1	
		B	T R	1	- 3
		L	T R	7	- 950P
523	4	L	MT RF	11	
524	4	L	MT RF	10	
		L	MT RF	11	
525	4	L	MT RF	9	
		L	MT RF	1	
526	4	L	MT RF	9	
531	3	L	M F	2	
		B	T R	2	- 4
627	5	L	MTWRF	2	
628	4	L	M W	2	- 4
		L	M W	9	-11
		L	T R	7	- 845P
689	15	W	ARR		
693	2- 5	C	ARR		
711	3	L	M	7	- 845P
811	3	D	T R	1	- 230
		D	T R	7	- 815P
831	3	S	M W F	10	
846	3	S	T R	7	- 845P
847	3	S	T R	7	- 845P
852	3	S	M W F	11	
853	3	S	ARR		
861	3	S	ARR		
998		I	ARR		
999		I	ARR		

## Administrative Sciences Survey Courses

No.	Crd't.	Sec.	Day	Time	Instructor
SUMMER QUARTER					
1			T	11	
AUTUMN QUARTER					
1		L	M	2	
		L	T	10	
		L	T	2	
		L	W	2	
		L	R	10	
		L	R	2	
101	3	S	M W F	10	
301	2- 5	S	ARR		
WINTER QUARTER					
1		L	T	10	
		L	R	10	

Administrative Sciences Survey Courses (Cont'd)

101 3 S M W F 10  
301 2- 5 S ARR  
SPRING QUARTER

101 3 S M W F 10  
301 2- 5 S ARR

Aeronautical and Astronautical Engineering

No Crd't. Sec. Day Time Instructor

SUMMER QUARTER

693 2-10 C  
694 2-10 L  
880 1 S  
889 2- 5 C  
999 I  
ARR  
ARR  
ARR  
ARR

SUMMER 1ST TERM

693 2-10 C  
880 1 S  
889 2- 5 C  
999 I  
ARR  
ARR  
ARR  
ARR

AUTUMN QUARTER

400 4 L MT RF 9  
594 3- 5 L MT RF 2  
600 4 L MT RF 10  
606 4 L MT RF 1  
693 2-10 C MT RF 11  
694 2-10 L MT RF 3  
695 1 S M F 10  
710 4 L T R 8  
745 4 L T R 9  
750 4 L MT RF 1  
770 4 L MT RF 8  
805 3 C MT RF 11  
810 3 C MT RF 2  
820 3 C ARR  
825 3 C ARR  
840 3 C ARR  
841 3 C ARR  
842 3 C ARR  
850 3 C ARR  
851 3 C ARR  
852 3 C ARR  
860 3 C ARR  
861 3 C ARR  
862 3 C ARR  
870 3 C ARR  
871 3 C ARR  
872 3 C ARR  
880 1 S T 4  
889 2- 5 C ARR  
999 I ARR

WINTER QUARTER

401 4 L MT RF 9  
594 3- 5 L MT RF 3  
603 4 L MT RF 10  
640 4 L MT RF 1  
660 4 L MT RF 9  
693 2-10 C MT RF 2  
694 2-10 L MT RF 11  
711 2- 4 B MT RF 3  
720 4 L MT RF 3

725 4 L MT RF 9  
746 4 L MT RF 2  
751 4 L MT RF 4  
760 4 L MT RF 11  
775 4 L MT RF 1  
810 3 C ARR  
820 3 C ARR  
825 3 C ARR  
840 3 C ARR  
841 3 C ARR  
842 3 C ARR  
850 3 C ARR  
851 3 C ARR  
852 3 C ARR  
860 3 C ARR  
861 3 C ARR  
862 3 C ARR  
870 3 C ARR  
871 3 C ARR  
872 3 C ARR  
880 1 S T 4  
889 2- 5 C ARR  
999 I ARR

SPRING QUARTER

500 4 L MT RF 9  
505 4 L MT RF 3  
594 3- 5 L MT RF 8  
620 4 L MT RF 2  
641 4 L T R 8  
661 4 L T R 9  
693 2-10 C MT RF 11  
694 2-10 L MT RF 3  
712 2- 4 B ARR  
715 4 L W S 8  
726 4 L W S 9  
740 4 L MT RF 11  
761 4 L MT RF 2  
771 4 L MT RF 9  
776 4 L MT RF 10  
810 3 C MT RF 1  
820 3 C MT RF 3  
825 3 C ARR  
840 3 C ARR  
841 3 C ARR  
842 3 C ARR  
850 3 C ARR  
851 3 C ARR  
852 3 C ARR  
860 3 C ARR  
861 3 C ARR  
862 3 C ARR  
865 3 C ARR  
870 3 C ARR  
871 3 C ARR  
872 3 C ARR  
880 1 S T 4  
889 2- 5 C ARR  
999 I ARR

Agricultural Economics

No. Crd't. Sec. Day Time Instructor

SUMMER QUARTER

412 5 D T R 1  
593 2- 5 C ARR  
993 2- 5 C ARR  
999 I ARR

SUMMER 1ST TERM

523 3 D MTWRF 9  
530 5 D MTWRF 10  
593 2- 5 C ARR  
594 1 D ARR



Agricultural Economics (Cont'd)

993	2- 5 C	ARR	
999	I	ARR	
SUMMER 2ND TERM			
593	2- 5 C	ARR	
993	2- 5 C	ARR	
999	I	ARR	
AUTUMN QUARTER			
100	5 D	MTWRF	8
		MTWRF	9
		MTWRF	10
		MTWRF	2
410	5 D	M WRF	8
		T	8 -10
		M WRF	2
		T	2 - 4
420	5 D	MTWRF	10
		MTWRF	1
516	5 D	MTWRF	11
523	3 D	M W F	9
530	5 D	MTWRF	9
532	3 D	M W F	8
540	3 D	M W F	8
541	5 D	MTWRF	10
593	2- 5 C	ARR	
594	1 D	W	4
610	5 D	MTWRF	10
		R	10 -12
		R	2 - 4
695	3 S	M W	3 - 430
800	3 D	T R	1 - 3
805	3 D	M W	3 - 430
807	2- 4 S	ARR	
816	2- 4 S	T	3 - 5
830	4 D	T R	8 -10
834	2- 4 S	T R	3 - 430
834	2- 4 S	ARR	
897	1 S	ARR	
899	1- 5 S	ARR	
993	2- 5 C	ARR	
995	2- 4 S	ARR	
999	I	ARR	
WINTER QUARTER			
100	5 D	MTWRF	8
		MTWRF	9
		MTWRF	10
		MTWRF	2
410	5 D	M WRF	8
		T	8 -10
412	5 D	T R	10 -12
420	5 D	MTWRF	9
		MTWRF	1
502	3 D	M W F	11
522	3 D	M W F	11
526	3 D	M W F	3
530	5 D	MTWRF	10
531	3 D	M W F	9
593	2- 5 C	ARR	
594	1 D	W	4
632	3 D	M W F	11
680	4 D	T R	1 - 3
800	3 D	M W F	3
802	3 D	T R	1 - 230
810	3 D	M W F	1
811	2- 4 S	W	3
820	3 D	M W F	2
821	2- 4 S	ARR	
897	1 S	ARR	
899	1- 5 S	ARR	
993	2- 5 C	ARR	
995	2- 4 S	ARR	
999	I	ARR	
SPRING QUARTER			
100	5 D	MTWRF	8
		MTWRF	9
		MTWRF	2
199	5 D	MTWRF	10
410	5 D	M WRF	8
		T	8 -10
		M WRF	2
		T	2 - 4
411	5 D	M W F	3 - 5
412	5 D	T R	10 -12
420	5 D	MTWRF	9
		MTWRF	2
502	3 D	M W F	9
516	5 D	MTWRF	9
518	3 D	MT R	3
521	5 D	MTWRF	8
528	3 D	M W F	11

531	3 D	M W F	11
532	3 D	M W F	8
534	3 D	M W F	2
539	5 D	MTWRF	8
540	3 D	M W F	8
541	5 D	MTWRF	10
593	2- 5 C	ARR	
594	1 D	W	4
620	4 D	MTWRF	3
633	3 D	M W F	10
716	3 D	M W F	11
740	4 D	MTWRF	10
801	3 S	ARR	
803	2 S	ARR	
804	3 S	ARR	
805	3 D	M W F	2
806	3 D	M W F	3
831	3 D	M W F	10
832	2- 4 S	ARR	
897	1 S	ARR	
899	1- 5 S	ARR	
993	2- 5 C	ARR	
995	2- 4 S	ARR	
999	I	ARR	

Agricultural Education

No	Crd't.	Sec.	Day	Time	Instructor
SUMMER QUARTER					
380.02	2- 3 K			ARR	JENKINS
380.03	2- 3 K			ARR	WILSON
693	2- 3 C			ARR	
999	1- 3 S			ARR	
999	I			ARR	
SUMMER 1ST TERM					
380.02	2- 3 K			ARR	JENKINS
380.03	2- 3 K			ARR	WILSON
621	3 D	M W F	1 - 3		GUILER
631	3 D	MTWRF	9		BENDER
693	2- 3 C			ARR	
790.01	4			MTWRF	800-5000
812	3 D			MTWRF	9
823	3 D			MTWRF	10
845	3 D			MTWRF	11
999	I			ARR	WOODIN
SUMMER 2ND TERM					
380.02	2- 3 K			ARR	JENKINS
380.03	2- 3 K			ARR	CUNNINGHAM
693	2- 3 C			ARR	
999	I			ARR	
AUTUMN QUARTER					
200	3 D	M W F	10		BOUCHER
		M W F	1		BOUCHER
230	5 D	MTWRF	9		WOLF
		R	1 - 5		WOLF
380.01	2- 3 K			ARR	WILSON
380.02	2- 3 K			ARR	JENKINS
380.03	2- 3 K			ARR	WILSON
581	5 K			ARR	WILSON
582	5 K			ARR	WILSON
583	5 K			ARR	JENKINS
622	3 D			ARR	BENDER
641	3 D			ARR	WOODIN
		W	530- 8 P		WOLF
684	3- 5 K			ARR	GUILER
693	2- 3 C			ARR	
744	3 D			ARR	STARLING
794	3- 5 D			ARR	
795	1- 3 S			R	8 -10
810	3 D	T R	4 - 530		BENDER
811	3 D	R	4 - 630		WOODIN
889	3 C			ARR	R MCCORMIC
899	2- 3 S			ARR	
999	I			ARR	
WINTER QUARTER					
200	3 D	M W F	10		BOUCHER
		M W F	1		BOUCHER
230	5 D	MTWRF	9		WOLF
		R	1 - 5		WOLF
380.01	2- 3 K			ARR	WILSON
380.02	2- 3 K			ARR	JENKINS

**Agricultural Education (Cont'd)**

380.03	2, 3	K	ARR	WILSON
581	5	K	ARR	WILSON
582	5	K	ARR	WILSON
583	5	K	ARR	JENKINS
631	3	D	T R 3 - 430	BENDER
684	3, 5	K	ARR	GUILER
693	2, 3	C	ARR	
743	3	D	ARR	JOHNSON
744	3	D	ARR	STARLING
790.01	4	D	MTWRF 8 -12	CUNNINGHAM
794	3, 5	D	ARR	
795	1- 3	S	T 8 -10	WOODIN
823	3	D	M W 7 - 930P	CUNNINGHAM
			M 3 - 5	TAYLOR
885	3	D	M W 4 - 630	WOODIN
889	3	C	ARR	
899	2, 3	S	ARR	
999	1		ARR	
SPRING QUARTER				
200	3	D	M W F 10	BOUCHER
230	5	D	MTW F 9	WOLF
			MTW F 10	WOLF
			R 1 - 5	WOLF
380.01	2, 3	K	ARR	WILSON
380.02	2, 3	K	ARR	JENKINS
380.03	2, 3	K	ARR	WILSON
420	3	D	M W F 3	CUNNINGHAM
581	5	K	ARR	WILSON
582	5	K	ARR	WILSON
583	5	K	ARR	JENKINS
640	3	D	R 4 - 630	WOODIN
			T 3 - 530	GUILER
642	3	D	T 530- 8 P	BOUCHER
			ARR	BENDER
684	3, 5	K	ARR	GUILER
693	2, 3	C	ARR	
770	3	D	ARR	WOODIN
794	3, 5	D	R 7 - 930P	CUNNINGHAM
795	1- 3	S	R 8 -10	
811	3	D	ARR	TYLER
889	3	C	ARR	
899	2, 3	S	ARR	
999	1		ARR	

**Agricultural Engineering**

No.	Crd't.	Sec.	Day	Time	Instructor
SUMMER QUARTER					
593	3- 5	C	ARR		
693	3- 5	C	ARR		
999		I	ARR		
SUMMER 1ST TERM					
593	2- 5	K	ARR		
693	3- 5	K	ARR		
591A	4		MTWRF 830- 5		
999		I	ARR		
SUMMER 2ND TERM					
593	3- 5	C	ARR		
693	3- 5	C	ARR		
808	3	D	ARR		STEWART
999		I	ARR		
AUTUMN QUARTER					
220	3	D	M W 10		HERUM
			R 10 -12		HERUM
			F 10 -12		HERUM
230	3	D	M W 8		HUBER
			R 8 -10		HUBER
			F 8 -10		HUBER
240	3	D	M W 11		JOHNSON
			T F 10 -12		JOHNSON
			M W 2		JOHNSON
			T F 1 - 3		JOHNSON
250	3	D	M W 1		HARKNESS
			R 1 - 3		HARKNESS
270	3	D	M W F 2		SCHWAB
			M 2 - 5		SCHWAB
310	5	L	M W F 8		BLAISDELL

			8	T R 8 -10	BLAISDELL
			8	T R 10 -12	BLAISDELL
403	5	W	ARR		
593	3- 5	C	ARR		
675	5	D	M W F 9		SCHWAB
			T R 12 - 3		SCHWAB
681	5	D	M W F 10		HAMDY
			T R 10 -12		HAMDY
693	3, 5	C	ARR		
723	5	D	MTWRF 8		BARRE
753	4	D	M W F 3		RANEY
			R 3 - 6		RANEY
794	3	L	M W F 2		
850	1	S	R 2		
858	5	D	ARR		
897	1	S	ARR		
999		I	ARR		
WINTER QUARTER					
221	3	D	M W 2		BARRE
			T 1 - 3		BARRE
230	3	D	M W 3		HUBER
			D 9		HUBER
			R 3 - 5		HUBER
			F 8 -10		HUBER
			F 3 - 5		HARKNESS
231	3	D	M W 1		HARKNESS
			R 1 - 3		HARKNESS
240	3	B	MT F 10 -12		JOHNSON
411	5	L	T R F 10		BLAISDELL
			T R 11 - 1		BLAISDELL
473	4	D	MT R F 8		SCHWAB
533	5	D	M W F 1		HUBER
			T R 1 - 3		HUBER
593	3- 5	C	ARR		
693	3, 5	C	ARR		
724	5	D	MTWRF 10		HERUM
754	5	D	M W F 8		RANEY
			T R 8 -10		RANEY
850	1	S	R 2		SCHWAB
877	3	D	ARR		SCHWAB
897	1	S	ARR		DAMBACH
999		I	ARR		
SPRING QUARTER					
230	3	D	M W 8		HUBER
			R 8 -10		HUBER
			F 8 -10		HUBER
240	3	D	M W 11		JOHNSON
			T F 10 -12		JOHNSON
			M W 2		JOHNSON
			T F 1 - 3		JOHNSON
250	3	D	M W 10		HARKNESS
			R 10 -12		HARKNESS
270	3	D	M W F 2		TAIGANIDES
			M 2 - 5		TAIGANIDES
			T 2 - 5		TAIGANIDES
474	4	D	M W F 9		TAIGANIDES
			R 9 -12		TAIGANIDES
500	1	L	M 4		
593	3- 5	C	ARR		
611	5	L	M W F 8		BLAISDELL
			T R 8 -10		BLAISDELL
676	4	D	M W F 3		HARKNESS
			R 3 - 5		HARKNESS
693	3, 5	C	ARR		
725	4	D	M W F 1		BARRE
			R 1 - 4		BARRE
786	5	D	M W F 8		
			T R 8 -10		
794	3	L	M W F 9		
850	1	S	R 2		
857	3	L	ARR		
897	1	S	ARR		
999		I	ARR		

**Agriculture Survey Courses**

No.	Crd't.	Sec.	Day	Time	Instructor
SUMMER QUARTER					
101	1	D	M 9		
AUTUMN QUARTER					
101	1	D	T 9		RITCHIE
		D 6	T 12		RESSESEN
		D	T 3		MILLER



Agriculture Survey Courses (Cont'd)

			D	W	8		WALISER
			O		11		
			O	W	4		
			O	1 M	7	- 9 P	RITCHIE
351	1		O	M	4		BADER
WINTER QUARTER							
101	1		O	W	3		WALISER
351	1		O	W	2		ARCHER
			O	W	4		ARCHER
590	2		O	W	4	- 6	RITCHIE
SPRING QUARTER							
101	1		O	W	9		WALISER

Agronomy

No.	Crd't.	Sec.	Day	Time	Instructor
SUMMER QUARTER					
240	5	L	M W F	10	
		B		ARR	
412	4	O	M W F	8	
		B		ARR	
693	3- 5	C		ARR	
880	2	S	M	4	
999	I			ARR	
SUMMER 1ST TERM					
693	3- 5	C		ARR	
870	3	I		ARR	
999	I			ARR	
SUMMER 2ND TERM					
693	3- 5	C		ARR	
999		C		ARR	
AUTUMN QUARTER					
200	5	L	MTWRF	8	
		L	MTWRF	9	
		L	MTWRF	10	
		L	MTWRF	11	
		L	MTWRF	1	
		L	MTWRF	2	
240	5	L	M W F	8	HIMES
		B	M W F	10	HIMES
		B		ARR	
411	4	L	M W F	1	RAY
		B	T	1 - 3	RAY
		B		1 - 3	RAY
412	4	O	M W F	8	MOSER
		O	M W F	9	MOSER
		B	M	1 - 3	
		B	T	8 -10	
		B	T	8 -10	
		B	R	8 -10	
		B	R	10 -12	
422	4	L	M W F	2	HERR
		B	M	3 - 5	
		B	W	3 - 5	
441	4	L	M W F	1	HOFF
		F	S	ARR	
442	3	L	M W F	9	SHOENAKER
543	3	L	M W F	10	ARSCOTT
594	3, 5	C		ARR	
595	2	S	T R	3	HIMES
621	3	L	M W F	10	
670	3	L	M W F	3	ARSCOTT
671	5	L	M W F	11	TAYLOR
		B	T R	10 -12	
693	3, 5	C		ARR	
880	2	S	M	4	
884	3	C		ARR	
885	1	S	T	4	MCLEAN
897	1	S		ARR	
999		C		ARR	
WINTER QUARTER					
200	5	L	MTWRF	8	
		L	MTWRF	9	
		L	MTWRF	10	
		L	M W F	10	GEISMAN

			L	MTWRF	11		
			L	MTWRF	1		
			L	MTWRF	2		
240	5		L	M W F	8		HIMES
			B		ARR		
			L	M W F	10		HIMES
			B		ARR		
411	4		L	M W F	1		RAY
			B	T	1 - 3		RAY
			B	R	1 - 3		RAY
412	4		O	M W F	8		MOSER
			O	M W F	11		MOSER
			B	M	3 - 5		
			B	T	8 -10		
			B	T	10 -12		
			B	R	8 -10		
			B	R	10 -12		
510	4		L	MT RF	11		ARSCOTT
530	4		L	M W F	9		SMITH
			B	W	3 - 5		
594	3, 5	C		ARR			
595	2	S	T R	3			ARSCOTT
621	3	L	M W F	10			TRIPLETT
672	5	L	M W F	9			MCLEAN
			B	T R	1 - 3		MCLEAN
693	3, 5	C		ARR			
786	3	L		ARR			FRANKLIN
822	5	O	TWRF	4			BENDIXEN
			B	ARR			BENDIXEN
830	4	L	B	ARR			
			B	ARR			
871	3	L		ARR			
872	5	L	M W F	10			MCLEAN
			B	ARR			MCLEAN
880	2	S	M	4			
884	3	C		ARR			
887	5	L	MTWRF	8			SMITH
897	1	S		ARR			
999		C		ARR			
SPRING QUARTER							
200	5	L	MTWRF	8			
		L	MTWRF	9			
		L	MTWRF	10			
		L	MTWRF	11			
		L	MTWRF	1			
240	5	L	M W F	8			HIMES
		B	M W F	10			HIMES
		B		ARR			
412	4	O	M W F	9			MOSER
		O	M W F	11			MOSER
		B	T	8 -10			
		B	T	10 -12			
		B	M	3 - 5			
		B	R	8 -10			
		B	R	10 -12			
		B	R	3 - 5			
413	4	L	MT RF	10			MILLER
422	4	L	M W F	2			HERR
		B	T	1 - 3			
		B	R	1 - 3			
550	5	L	M W F	1			HALL
		F		ARR			
		B	T	1 - 3			HALL
		B	R	1 - 3			HALL
594	3, 5	C		ARR			
595	2	S	T R	3			
602	3	L	M W F	3			BENDIXEN
612	4	L	MT RF	8			MOSER
623	4	L	MT RF	11			MILLER
660	5	L	M W F	2			MILLER
		B	T R	2 - 4			
693	3, 5	C		ARR			
750	4	L		ARR			WILDING
		B		ARR			
850	3	L		ARR			
880	2	S	M	4			
884	3	C		ARR			
896	1- 3	S		ARR			
897	1	S		ARR			
999		C		ARR			

Air Science

No.	Crd't.	Sec.	Day	Time	Instructor
AUTUMN QUARTER					
101	2	D	M	10	

Air Science (Cont'd)

		D	M	11
		D	M	1
		D	M	2
		D	M	3
		D	T	8
		D	T	9
		D	T	10
		D	T	11
		D	W	1
		D	W	2
		D	W	3
		D	W	4
		D	R	9
		D	R	9
		D	R	10
		D	R	11
		D	R	12
		B	W	9
		B	W	12
		B	W	4
		B	R	9
		B	R	12
		B	R	4
201	2	D	T	1
		D	T	2
		D	T	3
		D	T	4
		D	W	8
		D	W	9
		D	W	10
		D	W	11
		D	W	12
		D	R	1
		D	R	2
		D	R	3
		D	R	4
		B	W	9
		B	W	12
		B	W	4
		B	R	9
		B	R	12
		B	R	4
301	3	S	TWR	9
		S	TWR	10
		S	TWR	11
		S	TWR	1
		S	TWR	2
		S	TWR	3
		B	MTWRF	ARR
401	3	S	TWR	9
		S	TWR	10
		S	TWR	11
		S	TWR	1
		S	TWR	2
		B	MTWRF	ARR
411	1	D	MTWR	11
WINTER QUARTER				
102	2	D	M	10
		D	M	11
		D	M	1
		D	M	2
		D	M	3
		D	T	8
		D	T	9
		D	T	10
		D	T	11
		D	W	1
		D	W	2
		D	W	3
		D	W	4
		D	R	8
		D	R	9
		D	R	10
		D	R	11
		D	R	12
		B	W	9
		B	W	12
		B	W	4
202	2	D	T	1
		D	T	2
		D	T	3
		D	T	4
		D	W	8
		D	W	9
		D	W	10
		D	W	11
		D	W	12
		D	R	1
		D	R	2
		D	R	3
		D	R	4
		B	R	9

		B	R	12
		B	R	4
302	3	S	TWR	9
		S	TWR	10
		S	TWR	11
		S	TWR	1
		S	TWR	2
		S	TWR	3
		B	MTWRF	ARR
402	3	S	TWR	9
		S	TWR	10
		S	TWR	11
		S	TWR	1
		S	TWR	2
		B	MTWRF	ARR
411	1	D	MTWR	11
SPRING QUARTER				
103	2	D	M	10
		D	M	11
		D	M	1
		D	M	2
		D	M	3
		D	T	8
		D	T	9
		D	T	10
		D	T	11
		D	W	1
		D	W	2
		D	W	3
		D	W	4
		D	R	8
		D	R	9
		D	R	10
		D	R	11
		D	R	12
		B	W	9
		B	W	12
		B	W	4
		B	R	9
		B	R	12
		B	R	4
203	2	D	T	1
		D	T	2
		D	T	3
		D	T	4
		D	W	8
		D	W	9
		D	W	10
		D	W	11
		D	W	12
		D	R	1
		D	R	2
		D	R	3
		D	R	4
		B	W	9
		B	W	12
		B	W	4
		B	R	9
		B	R	12
		B	R	4
303	3	S	TWR	9
		S	TWR	10
		S	TWR	11
		S	TWR	1
		S	TWR	2
		S	TWR	3
		B	ARR	
403	3	S	TWR	9
		S	TWR	10
		S	TWR	11
		S	TWR	1
		S	TWR	2
		B	ARR	
411	1	D	MTWR	11

Allied Medicine

No.	Crd't.	Sec.	Day	Time	Instructor
SUMMER QUARTER					
593	1-	5 I		ARR	
595	1-	3 S		ARR	
AUTUMN QUARTER					
101	2	D	T R	11	WENBERG



# Allied Medicine (Cont'd)

591	2	D	T R	4	SCHOEN
592	2	D		ARR	SCHOEN
WINTER QUARTER					
101	2	D	T R	11	WENBERG
591	2	D	T R	4	SCHOEN
592	2	D	MT RF	ARR	SCHOEN
SPRING QUARTER					
591	2	D	T R	4	SCHOEN
592	2	D		ARR	SCHOEN

# Anatomy

No	Crd't.	Sec.	Day	Time	Instructor
SUMMER QUARTER					
200	6	L	M W F	8	
		B	M W F	9 -11	
		B	M W F	2 - 4	
693	2- 5	W		ARR	
728	3, 5	W		ARR	
793	6,12	W		ARR	
	18	W		ARR	
999		I		ARR	
SUMMER 1ST TERM					
693	2- 5	W		ARR	
793	3, 5	W		ARR	
	6,12	W		ARR	
	18	W		ARR	
999		I		ARR	
AUTUMN QUARTER					
200	6	L	M W F	9 -10	
		B	M W F	1 - 3	
201	5	L	T R	8	
		B	T R	9 -12	
		B	T R	12 - 3	
637	3	L	W F	10	DELPHIA
		B	T	1	
			T R	2 - 4	
			R	2 - 4	
640	6	L	M W F	1	VERNALL
		B	M W F	2 - 5	
641	1	L	T	1	RUSSELL
651	2	LCB		ARR	
661	4	LCB		ARR	
671	4	LB		ARR	
681	1	LB		ARR	
693	2- 5	W		ARR	
727	3, 6	W		ARR	
729	2- 6	W		ARR	
	12,18	W		ARR	
730	2- 4	W		ARR	
	6,12	W		ARR	
	18	W		ARR	
793	3, 5	W		ARR	
	6	W		ARR	
	12,18	W		ARR	
840	3	D		ARR	
850	1	S	W	12	
999		W		ARR	
WINTER QUARTER					
200	6	L10	M W F	9	
		B10	M W F	10 -12	
		B10	M W F	1 - 3	
638A	5	LB		ARR	
639B	7	L	M W F	1	EGLITIS
		B	M W F	10	RUSSELL
			M W F	2 - 5	HALL
652	1	LB		ARR	
662	4	LCB		ARR	
672	2	LB		ARR	
682	1	LB		ARR	
693	2- 5	W		ARR	
729	2- 6	W		ARR	
	12,18	W		ARR	
730	2- 4	W		ARR	

	6,12	W		ARR	
	18	W		ARR	
793	3, 5	W		ARR	
	6,12	W		ARR	
	18	W		ARR	
818	4	L	T R	1 - 3	HALL
840	3	D		ARR	
850	1	S	W	12	
999		W		ARR	
SPRING QUARTER					
200	6	L10	W F	9	
		B10	M W F	10 -12	
		B10	M W F	1 - 3	
638B	5	LB		ARR	
639A	7	L	M W F	1	EGLITIS
			M W F	9	RUSSELL
			M W F	2 - 5	
653	1	LB		ARR	
663	4	LB		ARR	
673	4	LB		ARR	
683	3	LB		ARR	
643	3	I		ARR	
693	2- 5	W		ARR	
705	5,12	W		ARR	
727	3, 6	W		ARR	
728	2- 4	W		ARR	
	6	W		ARR	
729	2- 6	W		ARR	
	12,18	W		ARR	
730	2- 4	W		ARR	
	6,12	W		ARR	
	18	W		ARR	
793	3, 5	W		ARR	
	6,12	W		ARR	
	18	W		ARR	
821	6	I		ARR	
825	5	I		ARR	
826	5	I		ARR	
850	1	S	W	12	
999		W		ARR	

# Animal Science

No.	Crd't.	Sec.	Day	Time	Instructor
SUMMER QUARTER					
593	2- 5	I		ARR	
999		I		ARR	
SUMMER 1ST TERM					
593	3- 5	I		ARR	
594	3- 5	I		ARR	
693	3- 5	I		ARR	
694	3- 5	I		ARR	
999		I		ARR	
SUMMER 2ND TERM					
593	3- 5	I		ARR	
594	3- 5	I		ARR	
693	3- 5	I		ARR	
694	3- 5	I		ARR	
999		I		ARR	
AUTUMN QUARTER					
100	5	L	MTW R	9	PLIMPTON
		R	F	9	
		L	MTW R	2	
		R	F	2	
200	5	L	M W F	8	
		B	T R	8 -10	
		B	M W F	1	
		B	T R	1 - 3	
		B	T R	3 - 5	
250	3	D	M W F	10 -12	KUNKLE
430	5	L	MTW R	9	NABER
		B	F	8 -10	TYZNIK
		L	MTW R	11	TYZNIK
		B	F	10 -12	CLINE
		L	MTW R	3	CLINE
		B	F	3 - 5	CAHILL
450	5	L	M W F	1	CAHILL
		B	T R	1 - 4	WILSON
542	5	L	T RF	10	
		B	M W	10 -12	

## Animal Science (Cont'd)

543	5	L	M W F	10	WILSON
		B	T R	10 -12	WILSON
593	3-5	I	ARR		
594	3-5	I	ARR		
630	5	D	MT RF	10	CLINE
		B	ARR		CLINE
631	5	D	MT RF	1	TYZNIK
		B	ARR		TYZNIK
693	3-5	I	ARR		
694	3-5	I	ARR		
800	1	S	M	4	
830.04	3	D	M W F	10	TYZNIK
830.01	3	O	W	2	CONRAD
999		I	ARR		
WINTER QUARTER					
100	5	L	MTWRF	10	
		L	MTWRF	9	
200	5	L	M W F	8	
		B	T R	8 -10	
		B	M W F	1	
		B	T R	1 - 3	
250	3	D	M W F	10 -12	KUNKLE
430	5	L	MTWR	9	TYZNIK
		B	F	8 -10	TYZNIK
		L	MTWR	11	CLINE
		B	F	10 -12	CLINE
		L	MTWR	3	CLINE
		B	F	3 - 5	CLINE
440	5	L	T RF	10	
		B	M W	10 -12	
450	5	L	M W F	1	CAHILL
		B	T R	1 - 4	CAHILL
541	5	L	M W F	3	
		B	T R	3 - 5	
544	5	L	M W F	1	JUDY
		B	T R	1 - 3	JUDY
593	3-5	I	ARR		
594	3-5	I	ARR		
630	5	D	MT RF	2	NABER
		B	ARR		NABER
631	5	D	MT RF	8	TYZNIK
		B	ARR		TYZNIK
650	3	D	T R	10 -12	TYZNIK
693	3-5	I	ARR		
694	3-5	I	ARR		
800	1	S	M	4	
830.05	3	D	M W F	1	
999		I	ARR		
SPRING QUARTER					
100	5	L	MTWRF	12	
		L	MTWRF	3	
200	5	L	M W F	8	
		B	T R	8 -10	
		L	M W F	8	
		B	T R	10 -12	
		L	M W F	1	
		B	T R	1 - 3	
250	3	D	M W F	10 -12	KUNKLE
430	5	L	TWRF	9	TYZNIK
		B	M	8 -10	TYZNIK
		L	TWRF	11	TYZNIK
		B	M	10 -12	TYZNIK
		L	TWRF	3	CLINE
		B	M	3 - 5	CLINE
440	5	L	T RF	11	
		B	M W	10 -12	
450	5	L	M W F	1	CAHILL
		B	T R	1 - 4	CAHILL
451	3	D	M W F	3 - 5	ALTHOUSE
500	5	D	MTWRF	8 -10	WILSON
542	5	L	M W F	1	WILSON
		B	T R	1 - 3	WILSON
543	5	L	M W F	10	WILSON
		B	T R	10 -12	WILSON
544	5	L	M W F	3	JUDY
		B	T R	3 - 5	JUDY
593	3-5	I	ARR		
594	3-5	I	ARR		
630	5	D	MT RF	8	CLINE
		B	ARR		CLINE
631	5	D	MT RF	2	STAUBUS
		B	ARR		STAUBUS
650	3	B	T R	10 -12	OCKERMAN
693	3-5	I	ARR		
694	3-5	I	ARR		
800	1	S	M	4	
830.06	3	D	M W F	11	
999		I	ARR		

## Anthropology

No.	Crd't.	Sec.	Day	Time	Instructor
SUMMER QUARTER					
261	5	D	MTWRF	9	
		O	MTWRF	10	
664	8	F		ARR	
899	1-5	I		ARR	
993	3	I		ARR	
998		I		ARR	
999		I		ARR	
SUMMER 1ST TERM					
261	5	D	MTWRF	9 -11	
SUMMER 2ND TERM					
210	5	LR	MTWRF	900-1100	
664	8	F		ARR	
AUTUMN QUARTER					
210	5	L	M W F	3	WILLIAMS
		R	T R	1	
		R	T R	2	
		R	T R	3	
251	5	D	MTWRF	12	ESTEL
261	5	D	MTWRF	8	
		O	M W F	9	ESTEL
		R	T R	8	
		R	T R	9	
		R	T R	10	
		R	T R	11	
		D	MTWRF	2	- 910P
		D	T R	7	
401	3	D	M W F	10	KRAUSE
410	4	D	MTWR	9	DENTAN
415	4	D	MTWR	11	DENTAN
460	4	D	MTWR	1	HALL
640	3	C		ARR	LITTLE
693	1-4	C		ARR	
803A	3	S		ARR	WILLIAMS
803W	3	S		ARR	DENTAN
805A	3	S		ARR	
810C	3	S		ARR	BOURGUIGNO
820A	3	S		ARR	LITTLE
830A	3	S		ARR	KRAUSE
850A	3	S		ARR	BABY
899	1-5	S		ARR	
993		I		ARR	
998		I		ARR	
999		I		ARR	
WINTER QUARTER					
210	5	L	M W F	3	WILLIAMS
		R	T R	2	
		R	T R	3	
251	5	D	MTWRF	12	ESTEL
261	5	L	M W F	9	ESTEL
		R	T R	9	
		R	T R	10	
		R	T R	11	
		R	T R	1	
		D	MTWRF	2	- 910P
		D	MTWRF	3	
		D	M W	7	
414	4	D	MTWR	10	BENTAN
430	4	D	MTWR	3	CALLAHAN
450	4	D	MTWR	11	LITTLE
454	2	DB	F	1 - 4	BABY
570	4	D	MTWR	2	KRAUSE
610	4	D	MTWR	4	BOURGUIGNO
693	1-4	C		ARR	KRAUSE
803D	3	S		ARR	KRAUSE
803F	3	S		ARR	LITTLE
805D	3	S		ARR	DENTAN
810W	3	S		ARR	BOURGUIGNO
820B	3	S		ARR	
830I	3	S		ARR	
850B	3	S		ARR	HALL
899	1-5	I		ARR	BABY
998		I		ARR	
999		I		ARR	
SPRING QUARTER					
210	5	L	M W F	3	WILLIAMS
		R	T R	1	
		R	T R	2	
		R	T R	3	
251	5	D	MTWRF	12	ESTEL
261	5	L	M W F	9	ESTEL
		R	T R	9	



		R	T R	11	
		R	T R	1	
		D	MTWRF	10	
		D	MTWRF	2	
412	4	D	MTWRF	1	HALL
416	3	D	M W F	2	BOURGUIGNO
450	4	D	MTWRF	11	LITTLE
456	2	S	F	11	BABY
			ARR		
509	3	L	ARR		BOURGUIGNO
510	4	D	MTWRF	9	DENTAN
662	4	B	S 8	-12	BABY
693	1- 4	C	ARR		
803E	3	S	ARR		DENTAN
803G	3	S	ARR		WILLIAMS
805D	3	S	ARR		
810A	3	S	ARR		
820G	3	S	ARR		LITTLE
830I	3	S	ARR		KRAUSE
899		I	ARR		
993	3	I	ARR		
998		I	ARR		
999		I	ARR		

Arabic

No.	Crd't.	Sec.	Day	Time	Instructor
AUTUMN QUARTER					
101	5	R	MTWRF	12	CADORA
		B	ARR		
694	1- 5	C	ARR		
793	1- 5	I	ARR		CADORA
794	1- 5	I	ARR		CADORA
WINTER QUARTER					
102	5	R	MTWRF	12	CADORA
		B	ARR		
694	1- 5	C	ARR		
793	1- 5	I	ARR		CADORA
794	1- 5	I	ARR		CADORA
SPRING QUARTER					
694	5	D	MTWRF	12	CADORA
793	1- 5	I	ARR		CADORA
794	1- 5	I	ARR		CADORA

Architecture

No.	Crd't.	Sec.	Day	Time	Instructor
SUMMER QUARTER					
871	1- 5	C	ARR		
899	1- 5	S	ARR		
999		C	ARR		
AUTUMN QUARTER					
111	4	L	M	10	BOWSER
		B	M	11 -12	
			TWRF	10 -12	
		L	M	2	BOWSER
		B	M	3 - 4	
211	5	L	MTWRF	2 - 4	TILLEY
		B	M	3	
			TWRF	1 - 3	
			TWRF	1 - 4	
393	1- 5	C	ARR		
511	5	L	M	1	CLARK
		B	M	2 - 4	
			TWRF	1 - 4	
521	3	L	T	9	DIPNER
		B	M W F	9 -11	
601	3	L	M W F	11	BORCHERS
611	6	L	M	1	PHILLIAN
		B	M W F	1 - 5	
			T R	1 - 4	

					W	2 - 5	
621	4	L	M	F	8		WILSON
		B	M W F	9	-11		
661	4	L	T	R	8		PASSE
			T		9		
		B	T		10 -11		
			R		9	-11	
693	1- 5	C	M W F	2			
700	3	L	M W F	9			BORCHERS
711	7	L	M W	4			CODDINGTON
		B	M W	1 - 4			
			T R F	1 - 5			
721	5	L	TWRF	8			WILSON
		B	T R	9 -12			
751	3	L	M W F	11			CLARK
801	2	S	T R	2			BRINKERS
811	5	B	ARR				BRINKERS
812	5	B	ARR				BRINKERS
871.01	1- 5	C	ARR				
871.02	1- 5	C	ARR				
871.03	1- 5	C	ARR				
871.04	1- 5	C	ARR				
871.05	1- 5	C	ARR				
871.06	1- 5	C	ARR				
871.07	1- 5	C	ARR				
871.08	1- 5	C	ARR				
871.09	1- 5	C	ARR				
871.10	1- 5	C	ARR				
899	1- 5	S	ARR				
999		C	ARR				

WINTER QUARTER

112	4	L	M	10			BOWSER
		B	M	11 -12			
			TWRF	10 -12			
		L	M	2			BOWSER
		B	M	3 - 4			
			TWRF	2 - 4			
212	5	L	M	3			TILLEY
		B	M	1 - 3			
			TWRF	1 - 4			
393	1- 5	C	ARR				
512	5	L	M	1			CLARK
		B	M	2 - 4			
			TWRF	1 - 4			
522	3	L	T	9			DIPNER
		B	M W F	9 -11			
602	3	L	M W F	11			BORCHERS
612	6	L	M	1			PHILLIAN
		B	M F	1 - 5			
			T R	1 - 4			
				2 - 5			
622	4	L	M F	8			WILSON
		B	M W F	9 -11			
662	4	L	T R	8			PASSE
			T	9			
		B	T	10 -11			
			R	9 -11			
693	1- 5	C	M W F	2			
712	7	L	M W	4			CODDINGTON
		B	M W	1 - 4			
			T R F	1 - 5			
722	5	L	TWRF	8			WILSON
		B	T R	9 -12			
752	3	L	M W F	11			CLARK
802	2	S	T R	2			BRINKERS
811	5	B	ARR				BRINKERS
812	5	B	ARR				BRINKERS
871.01	1- 5	C	ARR				
871.02	1- 5	C	ARR				
871.03	1- 5	C	ARR				
871.04	1- 5	C	ARR				
871.05	1- 5	C	ARR				
871.06	1- 5	C	ARR				
871.07	1- 5	C	ARR				
871.08	1- 5	C	ARR				
871.09	1- 5	C	ARR				
871.10	1- 5	C	ARR				
899	1- 5	S	ARR				
999		C	ARR				

SPRING QUARTER

101	5	L	M W F	10			BOWSER
113	4	L	M	2			BOWSER
		B	M	3			
			TWRF	2 - 4			
213	5	L	T	3			TILLEY
		B	T	1 - 3			
			M WRF	1 - 4			
393	1- 5	C	ARR				
513	5	L	M	1			CLARK
		B	M	2 - 4			
			TWRF	1 - 4			
523	3	L	T	9			DIPNER
		B	M W F	9 -12			
603	3	L	M W F	11			BORCHERS
613	6	L	M	1			PHILLIAN
		B	M F	1 - 5			

Architecture (Cont'd)

				T R	1 - 4	
				W	2 - 5	
623	4	L	B	M W F	8	WILSON
				T R	9	
663	4	L	B	T	10	PASSE
				T	10	
				R	9	
693	1-5	C		M W F	9	
713	10	L	B	M W F	4	CODDINGTON
				M W F	10	
				T R F	1	
723	5	L	B	T R	8	WILSON
				T R	9	
803	2	S	B	T R	2	BRINKERS
811	5	S	B			BRINKERS
812	5	S	B			BRINKERS
871.01	1-5	S				
871.02	1-5	C				
871.03	1-5	C				
871.04	1-5	C				
871.05	1-5	C				
871.06	1-5	C				
871.07	1-5	C				
871.08	1-5	C				
871.09	1-5	C				
871.10	1-5	C				
899	1-5	S				
999	1-5	C				

999				I		ARR
SUMMER	2ND TERM					
693	1-8	C				ARR
999		C				ARR
AUTUMN	QUARTER					
101	5	L	R	M R F	9	
				W	9	
				M	7	P
				M	8	P
				W	7	P
150	5	L		M W	7	- 915P
				T R	7	- 915P
650	4	L		T R	1	- 3
689	3	L		M W	1030-12	
693	1-15	C			ARR	
785	3	L		T R	1030-12	
801	1	S		T R	3 - 5	
811	3	L		T R	1 - 230	
821	3	L		T R	9 - 1030	
895	1-5	L		T	9 - 11	
999		C			ARR	
WINTER	QUARTER					
102	5	L	R	M R F	9	
				W	9	
				M	7	P
				M	8	P
				W	7	P
601	3	L		T R	9	- 1030
611	3	L		T R	11	- 1230
651	4	L		T R	1	- 3
693	1-15	C			ARR	
786	3	L		T R	1030-12	
802	1	S		T R	3 - 5	
812	3	L		T R	1 - 230	
822	3	L		T R	9 - 1030	
862	3	L			ARR	
999		C			ARR	
SPRING	QUARTER					
150	5	L		M W	7	- 915P
				T R	7	- 915P
301	3	B		M R	8	- 11
652	3	L		T R	1030-1230	
693	1-15	C			ARR	
787	3	L		T R	9	- 1030
803	1	S		T R	3 - 5	
813	3	L		T R	1030-12	
823	3	L		T R	1 - 230	
863	3	L			ARR	
999		C			ARR	

Arts and Sciences Survey Courses

No.	Crd't.	Sec.	Day	Time	Instructor
SUMMER QUARTER					
1		D	T	11	ARR
750		D			
AUTUMN QUARTER					
1		D	T	9	
		D	T	9	
		D	T	9	- 11
		D	T	11	
		D	T	1	
		D	T	3	
		D	R	1	
		D	R	3	
750		D			ARR
WINTER QUARTER					
1		D	R	11	
		D	R	4	
750		D			ARR
SPRING QUARTER					
1		D	R	11	
608	5	L	MTWRF	11	LAROCQUE
750					ARR

Aviation

No.	Crd't.	Sec.	Day	Time	Instructor
SUMMER QUARTER					
201	1	B	MTWRF	ARR	
211	4	L	M W F	8	
			T	8	- 10
401	1-4	B	MTWRF	ARR	
AUTUMN QUARTER					
201	1	B	MTWRF	ARR	
211	4	L	M W F	8	
			T	8	- 10
			M W F	2	
			R	3	- 5
401	1-4	B	MTWRF	ARR	
411	3	L	M W F	9	
WINTER QUARTER					
111	3	L	M W F	1	
201	1	B	MTWRF	ARR	
211	4	L	M W F	8	
			T	8	- 10
			T	7	- 930P
			R	7	- 9 P
401	1-4	B	MTWRF	ARR	
415	3	L	M W F	9	
SPRING QUARTER					
201	1	B	MTWRF	ARR	
211	4	L	M W F	8	
			T	8	- 10

Astronomy

No.	Crd't.	Sec.	Day	Time	Instructor
SUMMER QUARTER					
693	1-15	C		ARR	
999		C		ARR	
SUMMER 1ST TERM					
693	1-8	C		ARR	



		L	T	7	-	930P
401	1-4	B	R	7	-	9 P
419	3	L	MTWRF	ARR	9	

Biochemistry

No. Crd't. Sec. Day Time Instructor

SUMMER QUARTER

511	3	B	M W F	1	
521	3	L	T R	1	
623	5	B	T R	2	- 4
693	2-5	I	ARR	8	-12
785	2-5	I	ARR		
999	1		ARR		

SUMMER 2ND TERM

693	2-5	I	ARR		
785	2-5	I	ARR		
999	1		ARR		

AUTUMN QUARTER

521	3	B	T R	9	-12
531	3	L	M W F	9	
611	5	L	M W F	8	
693	2-5	I	ARR		
785	2-5	I	ARR		
811	3	L	M W F	9	
850	2	S	T	4	
999	I		M	115-215	ARR

WINTER QUARTER

511	4	L	M W F	2	
541	3	B	T R	8	-11
612	5	L	M W F	8	
621	5	B	T R	8	-12
693	2-5	I	ARR		
785	2-5	I	ARR		
821	3	L	M W F	9	
850	2	S	T	4	
999	I		ARR		

SPRING QUARTER

511	4	L	M W F	1	
521	3	B	T R	1	- 4
693	2-5	I	ARR		
708	5	B	T R	8	-12
709	5	L	M W F	8	
785	2-5	I	ARR		
850	2	S	T	4	
999	I		ARR		

Biology

No. Crd't. Sec. Day Time Instructor

SUMMER QUARTER

100	5	L	M W	8	
		BR	T RF	8	
		L	M W	9	
		BR	T RF	9	
		BR	T RF	10	
130	5	L	MTWRF	8	
630	5	L	MTWRF	9	
650	5	LB	ARR		

AUTUMN QUARTER

100	5	L	M W	8	
		L	M W	9	
		L	M W	10	
		L	M W	2	
		L	M W	3	
		L	M W	4	

	M W	5	
BR	T RF	8	
BR	T RF	9	
BR	T RF	10	
BR	T RF	11	
BR	T RF	12	
BR	T RF	1	
BR	T RF	2	
BR	T RF	3	
BR	T RF	4	
BR	T RF	5	
B	M W	8	
R	F	8	
B	M W	9	
B	F	9	
B	M W	10	
B	F	10	
B	M W	11	
B	F	11	
B	M W	12	
B	F	12	
B	M W	1	
B	F	1	
B	M W	2	
B	F	2	
B	M W	3	
B	F	3	
B	M W	4	
B	F	4	
B	M W	5	
B	F	5	
B	M W	8	
B	T	8	
B	M W	9	
B	T	9	
B	M W	10	
B	T	10	
B	M W	11	
B	T	11	
B	M W	12	
B	T	12	
B	M W	1	
B	T	1	
B	M W	2	
B	T	2	
B	M W	3	
B	T	3	
B	M W	4	
B	T	4	
B	M W	5	
B	T	5	
B	M W	8	
B	R	8	
B	M W	9	
B	R	9	
B	M W	10	
B	R	10	
B	M W	11	
B	R	11	
B	M W	12	
B	R	12	
B	M W	1	
B	R	1	
B	M W	2	
B	R	2	
B	M W	3	
B	R	3	
B	M W	4	
B	R	4	
B	M W	5	
B	R	5	
B	M W	8	
B	T R	8	
L	T R	9	
L	T R	10	
BR	M W F	11	
BR	M W F	12	
BR	M W F	1	
BR	M W F	2	
BR	M W F	3	
BR	M W F	4	
BR	M W F	5	
L	MTWRF	8	
L	M W F	9	
B	T	8	-10
B	R	8	-10
O	MTWRF	12	
O	MTWRF	1	
L	MTWRF	11	
L	TWRF	9	
B	M	8	-10
B	T	1	- 3
B	M	1	- 3
L	T	2	
B	T	1	- 3
L	M W	8	

PLAINE

TIDD

HOUSE  
SKAVARIL

VALENTINE

### Biology (Cont'd)

L	M W	9
L	M W	10
L	M W	2
L	M W	3
L	M W	4
L	M W	5
BR	T RF	8
BR	T RF	9
BR	T RF	10
BR	T RF	11
BR	T RF	12
BR	T RF	1
BR	T RF	2
BR	T RF	3
BR	T RF	4
BR	T RF	5
B	M W	8
R	F	8
B	M W	9
B	F	9
B	M W	10
B	F	10
B	M W	11
B	F	11
B	M W	12
B	F	12
B	M W	1
B	F	1
B	M W	2
B	F	2
B	M W	3
B	F	3
B	M W	4
B	F	4
B	M W	5
B	F	5
B	T R	8
R		8
B	T R	9
R		9
B	T R	10
R		10
B	T R	11
R		11
B	T R	12
R		12
B	T R	1
R		1
B	T R	2
R		2
B	T R	3
R		3
B	T R	4
R		4
B	T R	5
R		5
B	M W	5
L	M W	10
L	M W	2
L	M W	3
BR	T RF	8
BR	T RF	9
BR	T RF	10
BR	T RF	11
BR	T RF	12
BR	T RF	1
BR	T RF	2
BR	T RF	3
BR	T RF	4
BR	T RF	5
B	M W	8
R	F	8
B	M W	9
R	F	9
B	M W	10
R	F	10
B	M W	11
R	F	11
B	M W	12
R	F	12
B	M W	1
R	F	1
B	M W	2
R	F	2
B	M W	3
R	F	3
B	M W	4
R	F	4
B	M W	5
R	F	5
L	MTWRF	8
L	M W F	9
B	T	8

PLAINE  
COLINVAUX

		B	R	8	-10	
		B	T	9	-12	
		B	R	10	-12	
630	5	L	MTWRF	9		HOUSE
631	5	L	T R	1		PADDOCK
		B	M W F	1	- 3	
640	5	L	M W F	10		
		B	T	1	- 5	
		B	W	1	- 5	
		B	R	1	- 5	
		B	F	1	- 5	
650	5	L	TWRF	11		YOUNG
		B	M	8	-10	
		B	T	8	-10	
651	5	L	M W RF	11		HARVEY
		B	ARR			
<b>SPRING QUARTER</b>						
100	5	L	M W	8		
		L	M W	9		
		L	M W	10		
		L	M W	2		
		L	M W	3		
		L	M W	4		
		L	M W	5		
		BR	T RF	8		
		B	T R	8		
		R	F	8		
		BR	T RF	9		
		B	T R	9		
		R	F	9		
		BR	T RF	10		
		B	T R	10		
		R	F	10		
		BR	T RF	11		
		B	T R	11		
		R	F	11		
		BR	T RF	12		
		B	T R	12		
		R	F	12		
		BR	T RF	1		
		B	T R	1		
		R	F	1		
		BR	T RF	2		
		B	T R	2		
		R	F	2		
		BR	T RF	3		
		B	T R	3		
		R	F	3		
		BR	T RF	4		
		B	T R	4		
		R	F	4		
		BR	T RF	5		
		B	T R	5		
		R	F	5		
		B	M W	8		
		R	T	8		
		B	M W	9		
		R	T	9		
		B	M W	10		
		R	T	10		
		B	M W	11		
		R	T	11		
		B	M W	12		
		R	T	12		
		B	M W	1		
		R	T	1		
		B	M W	2		
		R	T	2		
		B	M W	3		
		R	T	3		
		B	M W	4		
		R	T	4		
		B	M W	5		
		R	T	5		
101	5	L	M W	9		
		L	M W	10		
		L	M W	2		
		L	M W	3		
		BR	T RF	8		
		BR	T RF	9		
		BR	T RF	10		
		BR	T RF	11		
		BR	T RF	12		
		BR	T RF	1		
		BR	T RF	2		
		BR	T RF	3		
		BR	T RF	4		
		BR	T RF	5		
		B	M W	8		
		B	F	8		
		R	M W	9		
		R	F	9		
		B	M W	10		
		R	F	10		
		B	M W	11		
		R	F	11		



# Botany

No.	Crd't.	Sec.	Day	Time	Instructor
SUMMER QUARTER					
101	5	LB	MTWRF	9	
		LB	MTWRF	10	
		LB	MTWRF	1	
102	5	LB	MTWRF	8	
		LB	MTWRF	9	
		LB	MTWRF	10	
		LB	MTWRF	11	
		LB	MTWRF	1	
		LB	MTWRF	2	
410	5	LB	MTWRF	8 -10	
		LB	MTWRF	1 - 3	
630	3	L	M W F	9	MEYER
	5	L	M W F	9	MEYER
		B	T R	8 -10	
660	5	L	M W F	10	ELLETT
693	1- 5	C		ARR	
999		I		ARR	

SUMMER 1ST TERM					
610	4		T R S	8 -12	FISHER
			T R S	1 - 5	
632	4		M W F	8 -12	BURLEY
			M W F	1 - 5	
693	1- 5			ARR	
999		I		ARR	

SUMMER 2ND TERM					
621	4	LBF	M W F	800-1200	GILBERT
			M W F	100- 400	
644	4	LBF	T R S	8 -12	TAFT
		LBF	T R S	1 - 4	
693	1- 5	C		ARR	
999		I		ARR	

AUTUMN QUARTER					
101	5	BD	MTWRF	9	
		BD	MTWRF	10	
		BD	MTWRF	11	
		BD	MTWRF	12	
102	5	BD	MTWRF	8	
		BD	MTWRF	9	
		BD	MTWRF	10	
		BD	MTWRF	11	
		BD	MTWRF	1	
		BD	MTWRF	2	
		BD	MTWRF	3	
		BD	MTWRF	5	
500	5	BD	MTWRF	8	TAFT
		BD	MTWRF	9	TAFT
612	5	L	M W F	10	STUCKEY
		B	T R	10 -12	STUCKEY
620	5	L	M W F	11	GILBERT
		BF	R	2 - 5	GILBERT
630	3	L	M W F	10	MEYER,BURL
		L	M W F	1	BURLEY,ZAB
	5	L	M W F	10	MEYER,BURL
	3, 5	R	T	8	
		B	T	9	
			R	8 -10	
	5	L	M W F	1	BURLEY,ZAB
		R	T	10	
		B	T	11	
			R	10 -12	
641	5	BD	MTW F	1 - 3	BLAYDES
650	5	L	M W F	9	PADDOCK
		B	T R	8 -10	PADDOCK
660	5	L	M W F	1	SCHMITT
		B	T R	1 - 3	SCHMITT
693	1- 5	C		ARR	
809	1	S		R 4	
819	2	S		ARR	FISHER
829	2	S		ARR	GILBERT
832	3	L	M W F	3	PLATT
839	1	S	T	3	ZABKA
869	2	S		ARR	SCHMITT
897	1	S		ARR	
999		I		ARR	

WINTER QUARTER					
101	5	BD	MTWRF	8	
		BD	MTWRF	9	
		BD	MTWRF	10	
102	5	BD	MTWRF	8	
		BD	MTWRF	9	
		BD	MTWRF	10	
		BD	MTWRF	11	
		BD	MTWRF	12	
		BD	MTWRF	1	

# Biophysics

No.	Crd't.	Sec.	Day	Time	Instructor
SUMMER QUARTER					
702	1- 3	B		ARR	
793	1- 5	B		ARR	
999			I	ARR	
AUTUMN QUARTER					
700	1	S		ARR	
702	1- 3	B		ARR	
793	1- 5	B		ARR	
800	3	C		ARR	
999		I		ARR	
WINTER QUARTER					
700	1	S		ARR	
702	1- 3	B		ARR	
793	1- 5	B		ARR	
800	3	C		ARR	
999		I		ARR	
SPRING QUARTER					
700	1	S		ARR	
702	1- 3	B		ARR	
793	1- 5	B		ARR	
800	3	C		ARR	
999		I		ARR	

# Biostatistics

No.	Crd't.	Sec.	Day	Time	Instructor
SUMMER QUARTER					
616	5	D	M W F	4	
999		I		ARR	
AUTUMN QUARTER					
601	3	D	T R	4	
800	3	D		ARR	
999		I		ARR	
WINTER QUARTER					
605	3	D	T R	4	
801	3	D		ARR	
999		I		ARR	
SPRING QUARTER					
610	3	D	T R	4	
802	3	D		ARR	
999		I		ARR	

		B	M W	12	
		R	F	12	
		B	M W	1	
		R	F	1	
		B	M W	2	
		R	F	2	
		B	M W	3	
		R	F	3	
		B	M W	4	
		R	F	4	
		B	M W	5	
		R	F	5	
130	5	L	MTWRF	8	PLAINE
420	5	D	MTWRF	10	TIDD
		D	MTWRF	11	
650	5	L	TWRF	3	SKAVARIL
		B	M	1 - 3	
		B	T	1 - 3	
		B	M	3 - 5	
830	5	D	MTWRF	9	PLAINE
832	5	L	MTWRF	10	HARVEY
		B	ARR		

## Botany (Cont'd)

		BD	MTWRF	2	
		BD	MTWRF	3	
		BD	MTWRF	4	
		BD	MTWRF	5	
500	5	BD	MTWRF	9	TAFT
630	3	L	M W F	11	BURLEY
	5	L	M W F	11	BURLEY
		R	T	10	
		B	T	11	
			R	10	-12
	3, 5	B	T	10	
		B	T	11	
			R	10	-12
631	3	L	M W F	10	ZABKA
	5	L	M W F	10	ZABKA
		R	T	1	
		B	T	2	
			R	1	- 3
640	5	BD	MTWRF	10	-12
642	5	B	TWRF	1	- 3
643	5	BD	MTW F	1	- 3
662	5	L	M W F	1	- 3
		B	T R	1	- 3
693	1- 5	C	ARR		
809			R	4	
819	2	S	ARR		FISHER
829	2	S	ARR		GILBERT
833	3	L	M W F	3	MEYER
839	1	S	T	3	SWANSON
861	5	L	M W F	1	
		B	T R	1	- 3
869	2	S	ARR		ELLETT
897	1	S	ARR		
999		I	ARR		
SPRING QUARTER					
102	5	BD	MTWRF	8	
		BD	MTWRF	9	
		BD	MTWRF	10	
		BD	MTWRF	11	
		BD	MTWRF	12	
		BD	MTWRF	1	
		BD	MTWRF	2	
		BD	MTWRF	3	
		BD	MTWRF	4	
		BD	MTWRF	5	
410	5	FBD	MTWRF	8	-10
		FBD	MTWRF	10	-12
		FBD	MTWRF	12	- 2
		FBD	MTWRF	2	- 4
		FBD	MTWRF	4	- 6
440	5	BD	MTWRF	2	
500	5	BD	MTWRF	8	
620	5	L	M W F	11	GILBERT
		BF	R	2	- 5
631	3	L	M W F	10	
	5	L	M W F	10	
		R	T	10	
		B	T	11	
			R	10	12
643	5	BD	MTW F	1	- 3
644	5	BD	TWRF	10	-12
661	3	L	M W F	1	- 3
		B	T	1	- 3
693	1- 5	C	ARR		POPHAM
720	5	L	M W F	9	TAFT
		BF	R	2	- 5
809	1	S	R	4	SCHMITT
819	2	S	ARR		SCHMITT
829	2	S	ARR		
831	3	BD	M W F	12	FISHER
834	3	L	M W F	3	GILBERT
839	1	S	T	3	
849	2	S	ARR		POPHAM
860	3	BD	M W F	10	-12
869	2	S	ARR		TAFT
896	1- 3	S	ARR		SCHMITT
897	1	S	ARR		
898	1	S	ARR		
999		I	ARR		

## Business Organization

No.	Crd't.	Sec.	Day	Time	Instructor
SUMMER QUARTER					
490	3	D	M W F	1	
500	3	D	M W F	8	
510	4	D	MTW F	9	
		D	MTW F	10	
620	4	D	MTW F	8	
		D	MTW F	10	
630	4	D	MTWRF	9	
		D	MTWRF	10	
640	4	D	MTWRF	8	
650	4	D	MTWRF	11	
		D	MTWRF	1	
660	3	D	M W F	11	
693	1- 3	C	ARR		
700	5	D	T R	10	-12
		D	T R	1	- 3
		D	T R	1	- 3
701	4	D	MTWRF	8	
		D	MTWRF	9	
702	3	D	M W F	8	
		D	M W F	9	
721	3	D	M W F	10	
722	3	D	M W F	11	
731	4	D	T R	8	-10
732	4	D	T R	1	- 3
751	6	D	M W F	1	- 3
799	4	D	T R	10	-12
		D	T R	2	- 4
800	3	D	T R	1	- 215
809	3	D	W	1	- 3
		D	W	5	- 7
820	3	D	M W	3	- 415
		D	M W	5	- 615
830	3	D	T R	3	- 415
		D	T R	5	- 615
850	3	D	T R	3	- 415
		D	T R	5	- 615
998		I	ARR		
999		I	ARR		
SUMMER 1ST TERM					
693	1- 3	C	ARR		
998		I	ARR		
999		I	ARR		
SUMMER 2ND TERM					
693	1- 3	C	ARR		
998		I	ARR		
999		I	ARR		
AUTUMN QUARTER					
220	3	D	M W F	1	
		D	M W F	2	
301	5	D	MTW F	9	
		D	R	9	
490	3	D	M W F	8	
		L	M W F	1	
		R	R	8	
		R	R	9	
		R	R	1	
		R	R	2	
		R	F	4	
		R	F	5	
500	3	D	M W F	8	
		D	M W F	9	
		D	T	7	-10 P
510	4	D	MTW F	8	
		D	MTW F	9	
		D	MTW F	1	
		D	T R	2	- 4
612	3	D	M W F	10	
613	3	D	M W F	11	
620	4	D	MTW F	10	
		D	M W F	4	- 6
630	4	D	MTW F	2	
		L	M W F	12	
		R	T	8	
		R	T	9	
		R	R	1	
		R	R	2	
640	4	D	MTWRF	12	
		J	T R	4	- 6
650	4	D	MTW F	9	
		D	T R	4	- 6
660	3	D	M W F	11	
		D	M W F	4	- 515
670	4	D	M W	7	- 9 P
693	1- 3	C	ARR		



700	5	D	MTWRF	11	
701	4	D	MTWRF	2	
702	3	D	MTWRF	1	
720	3	D	MTWRF	5	- 615
721	3	D	MTWRF	11	
722	3	D	MTWRF	2	
724	3	D	MTWRF	8	
726	3	D	MTWRF	9	
729	3	D	MTWRF	1	- 215
731	4	D	MTWRF	10	-12
732	4	D	MTWRF	10	-12
734	3	D	MTWRF	1	- 3
741	4	D	MTWRF	11	
750	3	D	MTWRF	2	- 4
751	6	D	MTWRF	5	- 615
753	4	D	MTWRF	1	- 3
754	4	D	MTWRF	3	- 5
755	4	D	MTWRF	9	-11
756	4	D	MTWRF	2	
757	4	D	MTWRF	1	- 3
758	4	D	MTWRF	10	
761	4	D	MTWRF	8	-10
762	4	D	MTWRF	3	- 5
772	3	D	MTWRF	2	
799	4	D	MTWRF	3	
800	3	D	MTWRF	8	-10
802	3	D	MTWRF	1	- 3
803	3	D	MTWRF	10	-115
809	3	D	MTWRF	1	- 215
822	3	D	MTWRF	7	-10 P
852.03	3	D	MTWRF	7	-10 P
860	3	D	MTWRF	4	- 6
880	3	D	MTWRF	11	-1215
899	1-5	D	MTWRF	1	- 215
900	3	D	MTWRF	5	- 615
930	3	D	MTWRF	4	- 6
950	3	D	MTWRF	7	- 9 P
959	3	D	MTWRF	4	- 6
960	3	D	MTWRF	7	- 9 P
999	1	D	MTWRF	4	- 6
WINTER QUARTER					
220	3	D	MTWRF	10	
490	3	D	MTWRF	1	
		D	MTWRF	8	
		L	MTWRF	1	
		R	MTWRF	8	
		R	MTWRF	9	
		R	MTWRF	1	
		R	MTWRF	2	
		R	MTWRF	3	
		R	MTWRF	4	
500	3	D	MTWRF	8	
510	4	D	MTWRF	9	
		D	MTWRF	10	
		D	MTWRF	2	- 4
611	3	D	MTWRF	8	
612	3	D	MTWRF	10	
613	3	D	MTWRF	1	
620	4	D	MTWRF	8	-10
630	4	D	MTWRF	4	- 6
		L	MTWRF	9	
		R	MTWRF	8	
		R	MTWRF	9	
		R	MTWRF	10	
		R	MTWRF	11	
		R	MTWRF	1	
		R	MTWRF	2	
		R	MTWRF	3	
		R	MTWRF	4	
640	4	D	MTWRF	7	- 9 P
650	4	D	MTWRF	10	-12
660	3	D	MTWRF	8	-10
		D	MTWRF	4	- 6
		D	MTWRF	9	

670	4	D	MTWRF	11	
693	1-3	C	MTWRF	2	
700	5	D	MTWRF	8	
701	4	D	MTWRF	9	
702	3	D	MTWRF	1	
		D	MTWRF	3	
		D	MTWRF	11	
		D	MTWRF	2	
720	3	D	MTWRF	5	- 615
721	3	D	MTWRF	4	
722	3	D	MTWRF	3	
723	3	D	MTWRF	9	
726	4	D	MTWRF	2	
727	3	D	MTWRF	1	- 3
729	3	D	MTWRF	10	-12
731	4	D	MTWRF	8	-10
		D	MTWRF	2	- 4
732	4	D	MTWRF	8	-10
734	3	D	MTWRF	2	
743	4	D	MTWRF	3	
749	4	D	MTWRF	4	- 6
750	3	D	MTWRF	5	-615
751	6	D	MTWRF	1	- 3
		D	MTWRF	3	- 5
753	4	D	MTWRF	1	- 3
755	4	D	MTWRF	9	-11
756	4	D	MTWRF	1	
762	4	D	MTWRF	10	
		D	MTWRF	11	
773	3	D	MTWRF	3	
799	4	D	MTWRF	8	-10
		D	MTWRF	1	- 3
801	3	D	MTWRF	5	- 615
820	3	D	MTWRF	8	- 915
		D	MTWRF	11	-1215
		D	MTWRF	4	- 515
830	3	D	MTWRF	7	- 815P
		D	MTWRF	10	-1115
		D	MTWRF	1	- 215
		D	MTWRF	5	- 615
840	3	S	MTWRF	2	- 4
850	3	D	MTWRF	4	-0515
		D	MTWRF	7	- 815P
		D	MTWRF	10	-1115
		D	MTWRF	1	- 215
852.07	3	S	MTWRF	4	- 6
870	3	S	MTWRF	7	-10 P
899	1-5	S	MTWRF	ARR	
901	3	D	MTWRF	7	- 9 P
929	3	D	MTWRF	7	- 9 P
931	3	S	MTWRF	4	- 6
951	3	S	MTWRF	4	- 6
961	3	S	MTWRF	4	- 6
998		I	MTWRF	ARR	
999		I	MTWRF	ARR	
SPRING QUARTER					
220	3	D	MTWRF	11	
		D	MTWRF	1	
490	3	D	MTWRF	3	
		L	MTWRF	8	
		R	MTWRF	1	
		R	MTWRF	8	
		R	MTWRF	9	
		R	MTWRF	1	
		R	MTWRF	2	
		R	MTWRF	3	
		R	MTWRF	4	
500	3	D	MTWRF	8	
510	4	D	MTWRF	8	
		D	MTWRF	9	
		D	MTWRF	2	- 4
612	3	D	MTWRF	8	
613	3	D	MTWRF	9	
620	4	D	MTWRF	12	
		D	MTWRF	4	- 6
630	4	D	MTWRF	3	
		L	MTWRF	12	
		R	MTWRF	8	
		R	MTWRF	9	
		R	MTWRF	1	
		R	MTWRF	2	
640	4	D	MTWRF	9	
		D	MTWRF	7	- 9 P
650	4	D	MTWRF	11	
		D	MTWRF	4	- 6
660	3	D	MTWRF	8	
		D	MTWRF	1	
670	4	D	MTWRF	10	
693	1-3	C	MTWRF	ARR	
700	5	D	MTWRF	11	
		D	MTWRF	2	
701	4	D	MTWRF	8	
		D	MTWRF	12	
702	3	D	MTWRF	10	
		D	MTWRF	3	

**Business Organization    (Cont'd)**

720	3	D	M W	5	- 615	
721	3	D	M W F	11		
722	3	D	M W F	11		
723	3	D	M W F	7	-10 P	
724	3	D	M W F	8		
727	3	D	T R	8	- 915	
729	3	D	M W	1	- 215	
			M W	7	- 815P	
731	4	D	M W	8	-10	
732	4	D	T R	8	-10	
734	3	D	M W F	10		
739	3	D	T R	10	-12	
749	4	D	T R	10	-12	
750	3	D	M W	7	- 815P	
751	6	D	M W F	8	-10	
			M W F	9	-12	
753	4	D	T R	9	-11	
754	4	D	MTWR	3		
755	4	D	T R	1	- 3	
756	4	D	MTWR	11		
757	4	D	MTWR	10		
758	4	D	T R	3	- 5	
761	4	D	MTW F	2		
769	3	D	M W F	11		
			M W F	2		
771	3	D	M W F	3		
780	4	D	MTWR	9		
799	4	D	T R	8	-10	
			T R	10	-12	
			T R	1	- 3	
800	3	D	T R	10	-1115	
			T R	1	- 215	
			W	7	-10 P	
802	3	C	T	4	- 6	
803	3	D	M W	11	-1215	
			M W	2	- 315	
			T R	7	- 815P	
809	3	D	T	4	- 6	
			T	7	- 9 P	
832	3	D	W	7	- 9 P	
841	3	S	W	4	- 6	
852.01	1- 3	S		ARR		
852.02	1- 3	S		ARR		
852.03	1- 3	S		ARR		
852.04	1- 3	S		ARR		
852.05	1- 3	S		ARR		
852.06	1- 3	S		ARR		
852.07	1- 3	S		ARR		
860	3	D	T R	10	-1115	
			T R	1	- 215	
			M	7	-10 P	
			F	4	- 6	
889	3	D		ARR		
899	1- 5	S		ARR		
909	3	S	W	4	- 6	
920	3	S	R	4	- 6	
955	3	S	T	4	- 6	
998		I		ARR		
999		I		ARR		

**Ceramic Engineering**

No.	Crd't.	Sec.	Day	Time	Instructor
SUMMER QUARTER					
489	2	F		ARR	
589	5	W		ARR	
693	1- 7	C		ARR	
999		I		ARR	
AUTUMN QUARTER					
421	5	L	MTWR	2	SHOOK
		B	F	2 - 5	SHOOK
489	2	F		ARR	
510	3	L	M W F	8	ALEXANDER
589	5	W		ARR	EVERHART
611	4	L	MTW F	11	HICKS
634	4	L	M W	10	RUSSELL
		B	M W	1 - 4	RUSSELL
693	1- 7	CB1		ARR	
712	4	L	MTWR	9	KING
713	4	L	MTWR	8	SHOOK

785	3	L		R	11	SHOOK
		B			ARR	
889	1- 2	S		T	2	KING
999		I			ARR	
WINTER QUARTER						
422	5	L	M W F	9	SHOOK	
			T R	11	SHOOK	
489	2	F		ARR		
589	5	W		ARR		
632	4	L		T R	10	KING
		B		T R	1 - 4	KING
693	1- 7	CB1		ARR		
711	4	L	MTWR	8	SHOOK	
741	3	L	M W F	9	KOENIG	
786	3	B		ARR		
851	4	L	M W	11	HICKS	
		B		ARR		
853	4	L		T R	8 -10	ALEXANDER
855	4	L	MTWR	10	RUSSELL	
889	1- 2	S		R	11	KING
999		I		ARR		
SPRING QUARTER						
423	3	L	M W F	10	RUSSELL	
489	2	F		ARR		
529	4	L	MTWR	9	EVERHART	
589	5	W		ARR		
621	5	L	MTW F	8	SHOOK	
		B		R	8 -10	SHOOK
631	4	L	M W	11	KOENIG	
		B		M W	1 - 4	KOENIG
633	4	L		T R	10	METZGER
		B		T R	2 - 5	METZGER
693	1- 7	CB1		ARR		
742	4	L	MTW F	11	HICKS	
790	3	L	M W F	11	EVERHART	
791	3	L	M W F	1	RUSSELL	
854	4	L		T R	8 -10	ALEXANDER
856	4	L	MTWR	10	KING	
889	1- 2	S		R	11	KING
999		I		ARR		

**Chemical Engineering**

No.	Crd't.	Sec.	Day	Time	Instructor
SUMMER QUARTER					
693	2- 8			ARR	KOFFOLT
730	4- 8	L	MTW	8	KOFFOLT
		B	MTW	9 - 5	HAERING
785	5, 6	CB		ARR	
801				ARR	KOFFOLT
830	2- 6			ARR	KOFFOLT
999		I		ARR	
SUMMER 1ST TERM					
693	2- 8	B		ARR	KOFFOLT
730	4- 8	L	MTWRF	8	KOFFOLT
		B		S 8 -12	HAERING
			MTWRF	9 - 5	HAERING
785	5, 6	CB		ARR	
801		CB		ARR	KOFFOLT
830	2- 6	B		ARR	KOFFOLT
881	2	S		ARR	
999		I		ARR	
SUMMER 2ND TERM					
693	2- 8	B		ARR	KOFFOLT
785	5, 6	CB		ARR	
801	1-15	CB		ARR	KOFFOLT
881	2	S		ARR	KOFFOLT
999		C		ARR	
AUTUMN QUARTER					
400	3	L	M W	9	KOFFOLT
		B	T	1 - 3	KOFFOLT
		B	T	3 - 5	KOFFOLT
489	5	W		ARR	KOFFOLT
520	3	L	M W	5 - 615	BRODKEY
		B		ARR	BRODKEY
608	3	L	T R	9	KAY
		B	T	1 - 3	KAY
611	3	L	M W	11	GEANKOPLIS
		B		R	1 - 3
		B		R	3 - 5
693	2- 8	B		ARR	KOFFOLT



750	1	L	W	4	KOFFOLT
760	3	L	T R	10	SYVERSON
		B	T	1 - 3	SYVERSON
		B	T	3 - 5	SYVERSON
761	3	L	W F	8	HERSHEY
		B	M	3 - 5	HERSHEY
770	3	L	T R	8	LYNN
		B	R	1 - 5	LYNN
785	5, 6	C	R	4	
		B		ARR	
801	1-15	C	R	4	
		B		ARR	
815.03	3	L	M W F	9	GEANKOPLIS
815.05	3	L	M W F	10	SWEENEY
815.08	3	L	M W F	1	BRODKEY
815.12	3	L	M W	5 - 615	
830	2- 6	B		ARR	
861	3	L	T R	9	SWEENEY
		B	M	3 - 5	SWEENEY
881	2	S		ARR	
999		C	R	4	
		B		ARR	

WINTER QUARTER

400	3	LB		ARR	HAERING
401	3	L	M W	11	GEANKOPLIS
		B	R	1 - 3	GEANKOPLIS
		B	R	3 - 5	GEANKOPLIS
520	3	L	M W	1	BRODKEY
		B	T	1 - 3	BRODKEY
		B	T	3 - 5	BRODKEY
521	3	LB		ARR	SMITH
609	3	L	T R	10	KAY
		B	T	1 - 3	KAY
612	4	L	M W F	10	KOFFOLT
		B	R	1 - 3	KOFFOLT
		B	R	3 - 5	KOFFOLT
693	2- 8	B		ARR	
762	4	C	T	1	SWEENEY
		B	M	2 - 5	SWEENEY
			T	2 - 6	SWEENEY
			R	1 - 5	SWEENEY
763	2	C	F	2	SYVERSON
		B		ARR	SYVERSON
773	3	L	M W F	8	LYNN
778	4	L	M W F	8	HAERING
		B		ARR	HAERING
785	5, 6	C	W	4	
		B		ARR	
801	1-15	C	W	4	
		B		ARR	
808	3	L	T	7 -10 P	KAY
812	3	L	M W F	10	HAERING
815.01	3	L	M W F	9	GEANKOPLIS
815.09	3	L	M W F	11	BRODKEY
815.13	3	L	M W F	8	HERSHEY
815.15	3	L		ARR	SYVERSON
830	2- 6	B		ARR	KOFFOLT
862	5	C	T	10	HAERING
		B	M	2 - 5	HAERING
			T	11	HAERING
			T	1 - 5	HAERING
			R	10 -12	LYNN
			R	1 - 5	HAERING
881	2	S		ARR	
999		C	W	4	
		B		ARR	

SPRING QUARTER

401	3	LB		ARR	
521	3	L	T R	11	SWEENEY
		B	R	1 - 3	SWEENEY
		B	R	3 - 5	SWEENEY
608	3	L	R	7 -10 P	
		B		ARR	
610	3	L	M W	10	SYVERSON
		B	F	10 -12	SYVERSON
		B	F	3 - 5	SYVERSON
611	3	L	M W	500- 615	SMITH
		B		ARR	SMITH
612	4	LB		ARR	KOFFOLT
685	2	F		ARR	KOFFOLT
693	2- 8	B		ARR	KOFFOLT
725	3	L	T R	10	
		B	T	1 - 5	
		B	R	1 - 5	
764	3	C	T	4	HAERING
		B	T R	8 -12	HAERING
771	3	L	M W F	2	SWEENEY
775	3	L	M W F	11	BRODKEY
785	5, 6	C	R	4	
		B		ARR	
801	1-15	C	T	4	
		B		ARR	
809	3	L	T	7 -10 P	KAY
813	3	L	M W F	8	HAERING
815.02	3	L	M W F	9	GEANKOPLIS

815.10	3	L	M W F	1	BRODKEY
815.14	3	L		ARR	
830	2- 6	B		ARR	
881	2	S		ARR	
999		C	W	4	
		B		ARR	

## Chemistry

No.	Crd't.	Sec.	Day	Time	Instructor
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SUMMER QUARTER

121	5	L	T R	8	
		B	M	8 -11	
		B		F 8	
		B	W	8 -11	
		B	F	9	
122	5	L	T R	10	
		B	M	9 -12	
		B	F	10	
		B	W	9 -12	
		B	F	11	
123	5	L	M W F	9	
		B	T R	8 -11	
232	5	L	M W F	1	
		B	M W	2 - 5	
242	3	L	M W F	1	
244	3	B	M W F	2 - 5	
651	3		M W F	10	
693	1-15			ARR	
835	3			ARR	
836	3			ARR	
872	3			ARR	
999		I		ARR	

SUMMER 1ST TERM

211	3	L	T R	1	
		B	M W	9 -12	
	4	L	T R	1	
		B	M W F	9 -12	
501	5			10	ARR
693	1-15	C			ARR
999		I			ARR

SUMMER 2ND TERM

212	3	L	T R	1	
		B	M W	9 -12	
	4	L	T R	1	
		B	M W F	9 -12	
693	1-15	C			ARR
999		I			ARR

AUTUMN QUARTER

101	5	L	M W F	9	
		B	T	8 -11	
		B	R	8	
		B	T	9 -12	
		B	R	9	
		B	S	8 -11	
		L	MTW	11	
		B	F	9 -12	
		B	R	11	
		B	R	9 -12	
		B	F	11	
		B	MTW	12	
		B	F	12 - 3	
		B	R	12	
		B	R	12 - 3	
		B	F	2	
		L	M W F	4	
		B	T	3 - 6	
		B	R	4	
102	5	L	M W F	8	
		B	R	8 -11	
		B	T	8	
		B	R	9 -12	
		B	T	9	
111	4	L	T R	9	
		B	M	8 -11	
		B	F	8	
		B	W	9 -12	
		B	F	9	
		L	W F	10	
		B	T	8 -11	
		B	M	10	
		B	T	9 -12	

### Chemistry (Cont'd)

		R	L	B	M	RF	11	
					M		2	
					M		12	- 3
					T		1	
					T		12	- 3
					M		2	
					M		3	
					R	F	3	- 6
					T		7	- 9 P
					T		7	-10 P
113	4				T		9	P
					F		4	
					T		3	- 6
121	5				T		8	
					M		8	-11
					F		8	
					M		8	-11
					F		9	
					T		10	
					M		9	-12
					F		10	
					M		9	-12
					F		11	
					T		1	
					M		12	- 3
					F		12	
					M		12	- 3
					F		1	
					T		3	
					M		3	- 6
					F		2	
					M		3	- 6
					F		3	
					T		7	- 9 P
					R		7	-10 P
					F		7	
122	5				T		12	
					M		12	- 3
					F		1	
123	5				M		2	
					MT		12	
					R		12	- 3
					F		3	- 6
					S		8	-11
201	5				T		10	
					M		10	-12
					F		10	
211	3, 4 3				T		9	
					M		9	-12
					T		1	- 4
					M		1	- 4
					F		1	- 4
					S		9	-12
					M		1	- 4
221	5				T		1	- 5
					M		9	
					F		1	
					T		8	-12 00
					S		8	-12
					T		8	-12
					M		1	- 4
					M		2	- 5
					F		1	- 5
231	5				T		11	
					M		10	-12
					F		9	-12
					T		9	
					T		2	- 4
					R		1	- 4
					T		1	
					T		8	-10 P
					R		7	-10 P
					F		7	
241	3				T		1	
243	3				M		9	-11
					F		8	-11
					M		8	
					M		3	- 5
					F		2	- 5
					T		2	
251	3				M		1	
254	3				M		3	- 5
					F		2	- 5
					T		2	
					L		10	
501	5				MT		8	
531	3				R		8	

601	1	L	T	R	1	- 5
631	3	L			8	
		B	T	R	2	- 5
					9	-12
635	3	L	T	R	11	
651	3	L	M	W	10	
671	3	L	M	W	3	
675	4	L	M	W	4	
		B			ARR	
693	1-15	C			ARR	
821	3	L	T	R	9	
831	3	L	M	W	4	
851	3	L	M	W	1	
875	3	L	M	W	11	
885	1	S			ARR	
941	3	L	M	W	1	
970	3	L	T	R	2	- 4
971	3	L	M	W	2	
991	3	S			ARR	
992	3	S			ARR	
995	3	S			ARR	
997	3	S			ARR	
999		I			ARR	
WINTER QUARTER						
101	5	L	M	W	8	
		B		S	8	-11
			T		8	
		B	F		9	-12
		B	T		9	
		B	S		8	-11
			T		9	
		L	MT		2	
		B	F		12	- 3
		B	R		12	- 3
102	5	L	F		2	
		B	M	W	9	
		B	T		8	-11
		B	R		8	
		B	T		9	-12
		B	R		9	
		B	S		8	-11
		L			9	
		B	MT		11	
		B	F		9	-12
		B	R		11	
		B	R		9	-12
		L	F		11	
		B	MT		4	
		B	R		3	- 6
111	4	L	RF		4	
		B	M		3	- 6
		B	T		4	
		B	T		3	- 6
112	4	L	T		9	
		B	M		8	-11
		B	F		8	
		B	W		9	-12
		B	F		9	
		L	W		10	
		B	T		8	-11
		B	M		10	
		B	R		9	-12
		B	M		11	
		L	RF		2	
		B	M		12	- 3
		B	W		1	
		B	T		12	- 3
		B	W		2	
		L	M	W	3	
		B	R		3	- 6
		B	F		3	
		B	R		3	- 6
		L	R		3	
		B	T		7	- 9
		B	R		7	-10
121	5	L	T		9	P P P
		B	W	F	12	
		B	T		12	- 3
		B	M		2	
		B	R		12	- 3
		L	M		3	
122	5	L	T	R	8	
		B	M		8	-11
		B	F		8	
		B	W		8	-11
		B	F		9	
		L	T	R	10	
		B	M		9	-12
		B	F		10	
		B	W		9	-12
		L	F		11	
		L	T	R	1	



		B	M	12	- 3	
		H	F	12	- 3	
		R	F	12	- 3	
		R	F	1	- 3	
		L	T R	3	- 6	
		H	M	3	- 6	
		B	M	3	- 6	
		B	F	2	- 6	
		R	F	3	- 6	
		H	F	7	- 9	P
		R	F	7	- 10	P
		L	R	7	- 10	P
123	5	L	M T R	12	- 3	
		B	F	12	- 3	
202	5	L	T R	10	- 12	
		B	M W	10	- 12	
		R	F	10	- 12	
211	3	L	T R	2	- 12	
		B	T R	9	- 12	
		B	M W	1	- 4	
	4	L	T R	2	- 12	
		B	T R S	9	- 12	
		B	M W F	1	- 4	
212	3	L	T R	9	- 12	
		B	M W	9	- 12	
		H	M W	1	- 4	
		B	T R	2	- 5	
	4	L	T R	9	- 12	
		B	M W F	1	- 4	
		B	T R	2	- 5	
		B	S	9	- 12	
232	5	L	M W F	11	- 12	
		B	T	10	- 12	
		R	T	9	- 12	
		B	T	2	- 4	
		R	T	1	- 4	
242	3	L	T	1	- 4	
		B	M W F	1	- 11	
244	3	L	M	9	- 11	
		B	M W F	8	- 11	
		R	M	8	- 10	P
		B	M	7	- 10	P
		B	M	7	- 10	P
		B	W	8	- 11	P
		B	S	8	- 11	
252	3	L	M W F	1	- 5	
254	3	B	M	3	- 5	
		B	M W F	2	- 5	
		R	M	2	- 10	P
		B	M	8	- 10	P
		B	W	7	- 10	P
		B	S	8	- 11	P
		R	M	7	- 11	P
		B	1	ARR		
		B	M	4	- 5	
255	3	L	M	2	- 5	
		B	M	3	- 5	
		B	M	3	- 5	
		B	W F	2	- 5	
532	3	L	M W F	8	- 12	
		R	M W F	8	- 12	
		R	F	10	- 12	
		L	M W F	8	- 12	
		R	M W F	8	- 12	
551	2	B	M W	8	- 12	
		B	M W	1	- 5	
552	2	B	T R	8	- 12	
		B	T R	1	- 5	
602	2	L	T R	10	- 12	
621	4	L	M W	11	- 12	
		B	M W	8	- 11	
		B	M W	1	- 4	
		B	T R	8	- 11	
		B	T R	1	- 4	
652	3	L	M W F	10	- 12	
676	3	L	M W F	9	- 12	
693	1-15	C	ARR			
733	3	L	T R	1	- 3	
822	3	L	T R S	9	- 12	
832	3	L	M W F	4	- 12	
852	3	L	M W F	1	- 5	
871	3	B	T R	1	- 5	
876	3	L	M W F	1	- 5	
881	3	L	T R	10	- 12	
885	1	S	ARR			
942	3	L	M W F	1	- 5	
972	3	L	M W F	2	- 5	
992	3	S	ARR			
995	3	S	ARR			
999	3	I	ARR			
SPRING QUARTER						
101	5	L	WRF	4	- 6	
		B	T	3	- 6	
		R	M	4	- 6	
		B	M	3	- 6	

102	5	R	T	4		
		L	M W R	11	- 11	
		B	F	8	- 11	
		R	T	10	- 12	
		B	F	9	- 12	
		R	T	11	- 12	
		L	MTW	2	- 3	
		B	F	12	- 3	
		R	R	2	- 3	
		B	F	3	- 6	
112	4	L	M W	3	- 6	
		B	F	3	- 6	
113	4	L	R	3	- 6	
		B	F	8	- 11	
		R	T R	8	- 11	
		B	M	8	- 11	
		L	T	11	- 12	
		B	M W	9	- 12	
		R	F	10	- 12	
		B	F	11	- 12	
		L	T R	3	- 6	
		R	M	3	- 6	
		B	M	4	- 6	
121	5	L	M W	12	- 3	
		B	T	12	- 3	
		R	F	12	- 3	
		B	F	2	- 3	
122	5	L	T R	1	- 3	
		B	M	12	- 3	
		R	F	12	- 3	
		B	W	12	- 3	
123	5	L	T R F	1	- 3	
		B	M W	8	- 11	
		L	M W F	10	- 12	
		B	T R	9	- 12	
		B	F	8	- 10	
		L	S	8	- 12	
		L	MT	4	- 12	
		B	R	3	- 6	
		L	W F	7	- 9	P
		L	T	7	- 9	P
		B	W	8	- 11	P
		B	W	7	- 10	P
203	5	L	T R	10	- 12	
		B	M W	9	- 12	
		R	F	10	- 12	
212	3	L	T R	2	- 4	
		B	M W	1	- 4	
	4	L	T R	2	- 4	
		B	M W F	1	- 4	
221	5	L	M W F	9	- 12	
		B	T R S	9	- 12	
		B	M W F	2	- 5	
231	5	L	M W F	11	- 12	
		B	T	10	- 12	
		R	T	9	- 12	
		B	T	9	- 12	
		B	T	2	- 4	
		R	T	1	- 4	
		R	T	1	- 4	
241	3	L	M W F	1	- 4	
243	3	B	M	9	- 11	
		B	M W F	8	- 11	
		R	M W F	8	- 11	
253	3	L	M W F	1	- 5	
255	3	B	M	8	- 10	P
		B	W	7	- 10	P
		B	S	8	- 11	P
		R	M	7	- 11	P
		B	M	3	- 5	P
		B	M W F	2	- 5	P
		R	M	2	- 5	P
		R	M	2	- 5	P
	3	B	1	ARR		
		R	M	4	- 12	
521	5	L	MTWRF	1	- 5	
533	3	L	M W F	8	- 12	
		R	R	8	- 12	
		R	F	10	- 12	
		L	M W F	8	- 12	
		R	M W F	8	- 12	
541	3	B	7	M W F	8	- 11
		B	7	M W F	2	- 5
551	2	B	T R	8	- 12	
		B	T R	1	- 5	
552	2	B	T R	8	- 12	
		B	T R	1	- 5	
587	5	L	M W F	9	- 12	
		B	M W	2	- 5	
		B	T R	2	- 5	
616	4	L	M W	2	- 5	
		B	ARR	8 HRS		





AUTUMN QUARTER

401	5	L	M W F	8	
		B	M W F	9	
		B	M W F	2	- 5
512	3	L	T R	2	- 5
		L	M W F	8	
552	4	L	M W F	8	
		L	M W F	9	
		B	T	2	- 5
		B	R	2	- 5
570	5	L	MT RF	8	
		L	T	2	- 4
571	4	L	M W F	10	
		L	M W F	11	
		B	T	2	- 4
		B	R	2	- 4
582	3	L	M W F	3	
631	5	L	M W F	10	
		L	T R	8	-10
		L	M W F	11	
		B	T R	10	-12
681	3	L	M W F	2	
701	4	L	ARR	9	
		B	ARR	9	
711	3	L	T R	10	-12
		B	T R	10	-12
716	3	L	M W F	1	
731	4	L	MT RF	8	
		L	MT RF	9	
737	3	L	M W F	11	
751	4	L	MT RF	10	
771	3	L	T R	1	
		B	R	2	- 5
794	3- 5	C	ARR	ARR	
801	3- 5	C	ARR	ARR	
810	5	L	M W F	9	
		B	ARR	ARR	
832	5	L	M W F	4	- 530
850	5	L	MT RF	8	
857	5	L	MT RF	9	
858	3	L	M W F	1	
871	5	L	M W F	2	- 4
		B	F	2	- 5
881	1	S	ARR	ARR	
885	3- 5	C	ARR	ARR	
999		C	ARR	ARR	

WINTER QUARTER

401	5	L	M W F	8	
		B	T R	2	- 5
402	4	L	M W F	10	
		L	M W F	11	
		B	T	8	-11
		B	R	8	-11
		B	T	2	- 5
		B	R	2	- 5
410	3	L	M W F	3	
430	4	L	MT RF	9	
		L	MT RF	1	
510	3	L	M W F	2	- 315
530	3	L	M W F	10	
601	3	L	T R	2	
		B	T R	3	- 5
611	5	L	MT RF	8	
		L	MT RF	9	
613	3	L	M W F	4	
632	5	L	MT RF	11	
651	4	L	M W F	10	
		L	M W F	11	
		B	T	2	- 5
		B	R	2	- 5
652	4	L	MT RF	12	
671	3	L	M W F	8	
		L	M W F	9	
673	3	L	M W F	11	
		B	R	8	-11
680	3	L	M W F	3	
682	3	L	M W F	4	
713	3	L	T R	9	
		B	T R	10	-12
732	3	L	M W F	10	
736	4	L	MT RF	1	
752	4	L	T R	11	
		B	T R	8	-11
773	4	L	M W F	3	- 5
		B	M W F	3	- 5
794	3- 5	C	ARR	ARR	
811	5	L	M W F	8	
		B	ARR	ARR	
831	5	L	MT RF	9	
851	5	L	M W F	8	
		B	ARR	ARR	
854	3	L	M W F	11	
872	5	L	M W F	2	- 4
		B	W	2	- 5

PURTZ

PURTZ

RICCA

RICCA

MADJIDZADE

MADJIDZADE

KARRER

TREITERER

TREITERER

VERNER

SMITH

SMITH

SMITH

SMITH

VERNER

MINTZER

MINTZER

SHUMATE

SHUMATE

COSENS

CHEN

CHEN

BISHARA

WU

KARRER

KARRER

HANNA

OJALVO

GREY

PAGEN

WU

SCHWAR

SCHWAR

COSENS

PURTZ

MINTZER

MINTZER

MINTZER

MINTZER

MINTZER

COSENS

CHEN

OJALVO

RICCA

PURTZ

PURTZ

PURTZ

COSENS

COSENS

PICCA

BISHARA

HOOPER

HOOPER

MADJIDZADE

KARRER

KARRER

KARRER

KARRER

KARRER

KARRER

KARRER

KARRER

KARRER

KARRER

KARRER

885 3- 5 C

999 3 C

SPRING QUARTER

403 5 L

M W F 8

M W F 9

M W F 2 - 5

404 3 L

B T R 10

F 2 - 5

511 3 L

M W F 10

M W F 11

531 4 L

MT RF 3

MT RF 11

551 4 L

M W F 10

M W F 1

M W F 2 - 5

581 4 L

T R 2 - 5

589 2 C

ARR 2 - 4

612 5 L

MT RF 9

MT RF 10

632 5 L

MT RF 9

MT RF 10

672 3 L

M W F 2

F 2 - 5

712 3 L

M W F 10

731 4 L

MT RF 11

734 3 L

M W F 11

772 4 L

M W F 8

T 2 - 5

773 4 L

T R 8

T R 9 -11

776 4 L

M W F 1

ARR 1 - 4

794 3- 5 C

ARR 10

801 3- 5 C

M W F 8

ARR 2

830 5 L

MT RF 2

ARR 2

833 5 L

M W F 4 - 530

834 5 L

MT RF 3

853 5 L

MT RF 8

855 5 L

MT RF 11

856 5 L

MT RF 9

870 5 L

MT RF 11

873 5 L

M W F 1 - 3

885 3- 5 C

896 1- 3 S

999 3 C

ARR 1 - 4

ARR 1 - 4

ARR 1 - 4

ARR 1 - 4

ARR 1 - 4

ARR 1 - 4

ARR 1 - 4

ARR 1 - 4

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Classics      (Cont'd)

220	5	L	MTWRF	11	FORBES JONES LENARDON
221	5	L	MTWRF	2	
222	5	L	MTWR	12	
		R	F	12	
		R	F	1	
		R	F	3	BABCOCK
225	3	L	MWF	10	

Comparative Literature and Language

No.	Crd't.	Sec.	Day	Time	Instructor
AUTUMN QUARTER					
101	3	R	M W F	8	
		R	M W F	9	
		R R 1	M W F	10	
		R	M W F	10	
		R	M W F	11	
		R	M W F	12	
		R	M W F	1	
		R	M W F	2	
		R	M W F	3	
		R	M W F	3	
	3	R	M W F	4	
		R	M W F	5	
		R	M W F	6	
		R	M W F	7	
WINTER QUARTER					
102	3	R	M W F	8	
		R	M W F	9	
		R R 1	M W F	10	
		R	M W F	10	
		R	M W F	11	
		R	M W F	12	
		R	M W F	1	
		R R 1	M W F	2	
		R	M W F	2	
		R	M W F	3	
		R	M W F	4	
		R	M W F	5	
		R	M W F	6	
		R	M W F	7	
SPRING QUARTER					
103	3	R	M W F	8	
		R	M W F	9	
		R R 1	M W F	10	
		R	M W F	10	
		R	M W F	11	
		R	M W F	12	
		R	M W F	1	
		R R 1	M W F	2	
		R	M W F	2	
		R	M W F	3	
		R	M W F	4	
		R	M W F	5	
		R	M W F	6	
		R	M W F	7	

Computer and Information Science

No.	Crd't.	Sec.	Day	Time	Instructor
SUMMER QUARTER					
241	5	D	MTWRF	8	
		D	MTWRF	9	
		D	MTWRF	10	
		D	MTWRF	11	
		D	MTWRF	1	
		D	MTWRF	2	
541	5	D	MTWRF	8	

543	5	D	MTWRF	9	FOULK
650	5	D	MTWRF	10	
693	1- 5	I	ARR		
694	1- 5	I	ARR		
793	1- 5	I	ARR		
794	1- 5	I	ARR		
889	2- 5	S	ARR		
994	1- 5	I	ARR		
999		I	ARR		
AUTUMN QUARTER					
241	5	D	MTWRF	8	
		D	MTWRF	9	
		D	MTWRF	10	
		D	MTWRF	11	
		D	MTWRF	12	
		D	MTWRF	1	
		D	MTWRF	2	
		D	MTWRF	3	
		D 5	MTWR	530- 7 P	
541	5	D	MTWRF	9	KERR
543	5	D	MTWRF	8	
641	5	D	MTWRF	9	
643	5	D	MTWRF	10	
693	1- 5	I	ARR		
694	1- 5	I	ARR		
705	5	D	MTWRF	1	
750	3	D	MTW	4	
760	3	D	ARR		
793	1- 5	I	ARR		
794	1- 5	I	ARR		
	2	D		2 - 4	KERR YOVITS
889	2- 5	D	R	2 - 4	
994	1- 5	I	ARR		
999		I	ARR		
WINTER QUARTER					
241	5	D	MTWRF	8	
		D	MTWRF	9	
		D	MTWRF	10	
		D	MTWRF	11	
		D	MTWRF	12	
		D	MTWRF	1	
		D	MTWRF	2	
		D	MTWRF	3	
		D 5	MTWR	530- 7 P	
541	5	D	MTWRF	9	HILDEBRAND
543	5	D	MTWRF	8	
645	5	D	MTWRF	9	
693	1- 5	I	ARR		
694	1- 5	I	ARR		
712	5	D	MTWRF	10	
720	5	D	MTWRF	1	
730	5	D	MTWRF	11	
740	5	D	MTWRF	10	
751	3	D	M W F	4	
753	5	D	MTWRF	9	ERNST LANGENDOEN FINLEY FOULK LISTON RUSH SALTZER
761	3	D	ARR		
793	1- 5	I	ARR		
794	1- 5	I	ARR		
865	3	D	T	2 - 4	
889	2- 5	D	R	2 - 4	
994	1- 5	I	ARR		
999		I	ARR		
SPRING QUARTER					
241	5	D	MTWRF	8	
		D	MTWRF	9	
		D	MTWRF	10	
		D	MTWRF	11	
		D	MTWRF	12	
		D	MTWRF	1	
		D	MTWRF	2	
		D	MTWRF	3	
		D 5	MTWR	530- 7	
541	5	D	MTWRF	9	KERR KERR FOULK
543	5	D	MTWRF	8	
641	5	D	MTWRF	9	
642	5	D	MTWRF	10	
650	5	D	MTWRF	8	
693	1- 5	I	ARR		
694	1- 5	I	ARR		
725	3	D	M W F	11	
746	5	D	MTWRF	10	
752	4	D	MTWR	9	FINLEY HILDEBRAND FINLEY RUSH
754	3	D	M W F	1	
793	1- 5	I	ARR		
794	1- 5	I	ARR		
812	5	D	MTWR	9	
		D	ARR		
820	3	D			
889	2- 5	S	R	2 - 4	
994	1- 5	I	ARR		
999		I	ARR		



# Conservation

No.	Crd't.	Sec.	Day	Time	Instructor
AUTUMN QUARTER					
201	3	D	M W F	9	
		D	M W F	10	
		D	M W F	11	
		D	M W F	1	
489	5	I		ARR	
693	2, 3	I		ARR	
	5	I		ARR	
WINTER QUARTER					
202	3	D	M W F	11	JOHNSON
489	5	I		ARR	
693	2, 3	I		ARR	
	5	I		ARR	
SPRING QUARTER					
201	3	D	M W F	12	
		D	M W F	1	
		D	M W F	2	
		D	M W F	3	
489	5	I		ARR	
693	2, 3	I		ARR	
	5	I		ARR	

# Dairy Science

No.	Crd't.	Sec.	Day	Time	Instructor
SUMMER QUARTER					
593	3, 5	C		ARR	
993	3, 5	C		ARR	
999		I		ARR	
SUMMER 1ST TERM					
593	3, 5	C		ARR	
993	3, 5	C		ARR	
999		I		ARR	
SUMMER 2ND TERM					
593	3, 5	C		ARR	
993	3, 5	C		ARR	
999		I		ARR	
AUTUMN QUARTER					
201	5	L	M W F	8	BRAKEL
		B	T R	8 -10	
420	5	L	MTWRF	1	FECHHEIMER
593	3, 5	C		ARR	
610	3	D	T R	10 -12	BARR PORTE
800	1	S	M	4	
810	3	D		F	HIBBS
820.06	3	D		ARR	JAAP
993	3, 5	C		ARR	
999		I		ARR	
WINTER QUARTER					
201	5	L	M W F	10	BRAKEL
		B	T R	10 -12	
340	5	L	M W F	2	KAESER
		B	T R	1 - 3	
420	5	L	MTWRF	9	JAAP
593	3, 5	C		ARR	
720	5	L	MTWRF	9	SWIGER
800	1	S	M	4	
810	3	D		ARR	VANDEMARK
820.04	3	D		ARR	HARVEY
820.05	3	D		ARR	FECHHEIMER
993	3, 5	C		ARR	
999		I		ARR	
SPRING QUARTER					
207	3	D	F	3 - 5	KAESER
		B	S	8 -12	
420	5	L	MTWRF	10	SWIGER R
593	3, 5	C		ARR	
612	3	L	M W F	1	LUDWICK
613	3	B	T R	1 - 3	LUDWICK
640	5	L	M WRF	10	BRAKEL

710	3, 5	D	T	10 -12	GOMES
800	1	S	D	ARR	
810	3	D	M	4	LUDWICK
820.01	3	D		ARR	HARVEY
820.07	3	D		ARR	SWIGER
885	5	D		ARR	GILMORE
898	1	S		ARR	
993	3, 5	C		ARR	
999		I		ARR	

# Dairy Technology

No.	Crd't.	Sec.	Day	Time	Instructor
SUMMER QUARTER					
289	3	A		ARR	KRISTOFERS
489	3	A		ARR	KRISTOFERS
493	3- 5	B		ARR	
693	3- 5	B		ARR	
885	3- 5	B		ARR	
999	1-12	B		ARR	
SUMMER 1ST TERM					
693	3- 5	B		ARR	
885	3- 5	B		ARR	
SUMMER 2ND TERM					
693	3- 5	B		ARR	
885	3- 5	B		ARR	
AUTUMN QUARTER					
289	3	A		ARR	KRISTOFERS
489	3	A		ARR	
493	3- 5	B		ARR	
521	3	L	M W F	10	KRISTOFERS
522	3	R	T R	1	KRISTOFERS
		B	T R	2 - 5	
636	5	L	M W F	1	VAKALERIS
		B	M W	2 - 5	
693	3- 5	B		ARR	
695	3	S	F	2 - 5	GOULD, HARP
850	1	S	R	5 - 7	
885	3- 5	B		ARR	
998	1-12	B		ARR	
999		B		ARR	
WINTER QUARTER					
289	3	A		ARR	KRISTOFERS
489	3	A		ARR	
493	3- 5	B		ARR	
631	3	L	M W F	1	HARPER
632	3	R	M W F	2	HARPER
		B	M W F	2 - 5	
693	3- 5	B		ARR	
745	5	L	T R	2 - 5	GOULD
850	1	S	R	5	
885	3- 5	B		ARR	
998	1-12	B		ARR	
999		B		ARR	
SPRING QUARTER					
201	5	L	M W F	9	LINDAMOOD
		B	T R	9 -11	
289	3	A		ARR	KRISTOFERS
411	3	B	M W F	10 -12	SLATTER
489	3	A		ARR	KRISTOFERS
493	3- 5	B		ARR	
623	5	L	T R	1	HARPER
		B	F	2	
		B	T R	2 - 5	
634	5	L	M W F	1	KRISTOFERS
		B	M W	2 - 5	
693	3- 5	B		ARR	
850	1	S	R	5	
885	3- 5	B		ARR	
898	1	S		ARR	
998	1-12	B		ARR	
999		B		ARR	

Dance

No.	Crd't.	Sec.	Day	Time	Instructor
AUTUMN QUARTER					
111	3	B	MTWRF	4 - 6	ALKIRE
199	1	B	T	7 -10 P	ALKIRE
		B	R	7 -10 P	
214	3	B	MTWRF	4 - 6	BLAINE
438	3	L	T R	10	KAVASNIKA
		B	T R	11	KAVASNIKA
532	3	L	M W	4	
		B	M W	5	
		B	F	4 - 6	
534	3	L	MTWRF	1	PAYTON
		B	MTWRF	2 - 4	PAYTON
537	3	L	M W F	10	PAYTON
		B	ARR 2 HRS		PAYTON
650	4	L	M W	7 - 9 P	BLAINE
		B	R	7 - 9 P	BLAINE
657	3	L	M W F	12	WYNNE
693	1- 4	I	ARR		ALKIRE
994	3	I	ARR		ALKIRE

WINTER QUARTER					
112	3	B	MTWRF	4 - 6	ALKIRE
199	1	B	T	7 -10 P	ALKIRE
		B	R	7 -10 P	
215	3	B	MTWRF	4 - 6	BLAINE
439	3	L	T R	10	
		B	T R	11	
533	5	L	M W	10	
		B	MTWRF	7 - 9 P	
535	3	L	MTWRF	1	PAYTON
		B	MTWRF	2 - 4	PAYTON
658	3	L	M W F	12	WYNNE
693	1- 4	I	ARR		ALKIRE
994	3	I	ARR		ALKIRE

SPRING QUARTER					
113	3	B	MTWRF	4 - 6	ALKIRE
138	3	L	M W F	2	
190	3	L	M W	9	PATTON
		B	T RFS	9	PATTON
199	1	B	T	7 -10 P	
		B	R	7 -10 P	
216	3	B	MTWRF	4 - 6	BLAINE
248	3	B	M W	11 - 1	PATTON
		L	F	12	PATTON
		B	M W	11 - 1	BLAINE
		L	F	12	BLAINE
531	3	L	T R F	10	
		B	T R F	10	
536	3	L	MTWRF	1	PAYTON
		B	MTWRF	2 - 4	PAYTON
650	4	L	M W	7 - 9 P	BLAINE
		B	R	7 - 9 P	BLAINE
659	3	L	M W F	12	WYNNE
693	1- 4	I	ARR		ALKIRE
994	3	I	ARR		ALKIRE

Dental Hygiene

No.	Crd't.	Sec.	Day	Time	Instructor
AUTUMN QUARTER					
201	3	L	M W F	10	PERMAR
		B	M W F	1 - 4	
295	1	L	M	1	WISE
301	1	L	M	8	SNYDER
311	2	D	R	8	WISE
		B	F	2	
321	3	K	MTWRF	9 -12	WISE
		K	MTWRF	2 - 5	WISE
331	1	L	T	8	REYNOLDS
341	1	L	R	9	BRUCE
351	2	L	R	10 -12	SCHWARTZ
361	2	L	W F	8	PAPPAS
WINTER QUARTER					
203	2	L	W F	2	PERMAR
		B	W F	2 - 5	
233	1	L	M	2	PERMAR

312	2	D	F	9	WISE
			F	2	
322	5	K	MTWRF	9 -12	WISE
			F	10 -12	
		K	MTWRF	2 - 5	WISE
			F	3 - 5	
335	5	L	MTWRF	8	FOREMAN
372	3	L	W	10	
		L	W	1	WOELFEL
		B	T R	9 -12	
		B	T R	1 - 4	
382	2	L	M F	1	CATHERMAN
SPRING QUARTER					
223	5	L	M W	1	REYNOLDS
		B	M W	2 - 4	
			F	1 - 4	
		B	T R	9 -12	
			S	9 -10	
243	2	L	T R	1	CAVALARIS
283	1	L	F	9	APP
313	1	D	F	1	WISE
323	5	K	MTWRF	9 -12	WISE
		K	MTWRF	2 - 5	
383	2	L	M W	1	CATHERMAN
393	2	L	T R	1	WEISENSTEIN

Dentistry

No.	Crd't.	Sec.	Day	Time	Instructor
SUMMER 2ND TERM					
389	5	LB		ARR	
433	3	LB		ARR	
453	2	LB		ARR	
463	1	L		ARR	
551	1	L		ARR	
593	1- 6	K		ARR	
601	2	LK		ARR	
602	2	LK		ARR	
604	2	LK		ARR	
632	5	LK		ARR	
652	1	K		ARR	
653	1	K		ARR	
681	3	LK		ARR	
683	2	K		ARR	
685	2	K		ARR	

AUTUMN QUARTER					
301	2	L	T	8	TRIPPY
		B	R	9 -12	TRIPPY
		B	T	9 -12	TRIPPY
320	1	L	M	10	WILSON
381	4	L	M	11	BOUCHER
		B	T	9 -12	BOUCHER
			R	1 - 4	BOUCHER
		B	T	1 - 4	BOUCHER
			R	9 -12	BOUCHER
404	1	L	R	10	CHANDLER
431	2	L	T	9	POSTLE
		B	W	2 - 5	POSTLE
484	2	L	M	1	LONG
		B	M	2 - 5	LONG
487	3	L	M	8	HEINTZ
		B	M	9 -12	HEINTZ
			F	2 - 5	HEINTZ
501	1	L	T	8	HIATT
511	1	L	T	9	MARSHALL
531	4	L	M	8	BECKWITH
		K		ARR	
540	4	L	W F	8	MELFI
		B	W F	9 -12	MELFI
541	4	L	M	10	KOLAS
			W	11	KOLAS
		B	S	8	KOLAS
			S	9 -12	KOLAS
547	1	L	M	8	OBRIEN
551	1	L	M	11	PETTIT
560	1	L	W	8	APP
561	1	K		ARR	
581	2	L	W	9	BOUCHER
		K		ARR	
584	1	L	R	8	LONG
587	1	L	W	10	HEINTZ
593	1- 6	K		ARR	
601	2	L	R	8	ALLISON
		K		ARR	



604	2	L	T	8	ALLISON
612	2	K		ARR	
613	1	SK		ARR	
621	1	L	F	8	TRIPPY
631	5	L	S	9	TAYLOR
633	5	K		ARR	
641	1	L	S	8	KOLAS
647	1	K		ARR	O'BRIEN
651	2	L	W	8	PETTIT
661	1	K		ARR	
681	3	L	M	8	BOUCHER
682	2	K		ARR	
683	2	K		ARR	
684	2	K		ARR	
686	2	K		ARR	
700.01	1-15	SK		ARR	ALLISON
700.02	1-15	SK		ARR	WILLIAMS
700.03	1-15	SK		ARR	APP
700.04	1-15	SK		ARR	BOUCHER
700.05	1-15	SK	T	4	KOLAS
700.06	1-15	SK		ARR	MARSHALL
700.07	1-15	SK		ARR	PETTIT
700.08	1-15	SK		ARR	MCCONNELL
700.09	1-15	SK		ARR	MELFI
700.10	1-15	SK		ARR	WILSON
785	1-5	B		ARR	PERMAR
793	1-5	B		ARR	CONROY
795	1	S		ARR	
999	1	I		ARR	
WINTER QUARTER					
302	4	L	M	9	TRIPPY
		B	W	8	TRIPPY
			F	1	TRIPPY
			T	1	TRIPPY
305	1	B	T	11	WOELFEL
382	4	L	M	10	KREIDER
		B	T	1	KREIDER
		B	R	8	KREIDER
432	3	L	W	1	H POSTLE
		B	W	2	H POSTLE
			F	9	H POSTLE
452	3	L	F	1	PETTIT
		B	F	2	PETTIT
462	1	L	T	3	APP
482	2	L	M	8	LARRIMER
		B	M	9	LARRIMER
485	3	L	M	1	LONG
		B	M	2	LONG
			W	9	LONG
502	1	L	W	8	HIATT
512	1	K		ARR	
532	4	L	T	8	BECKWITH
		B		ARR	
542	1	L	M	10	KOLAS
545	1	L	S	8	BLOZIS
548	1	L	M	11	O'BRIEN
555	1	K		ARR	
555	1	L	M	8	WILLIAMS
562	1	K		ARR	
572	1	L	F	8	HIATT
582	3	L	M	9	BOUCHER
		K		ARR	
585	2	L	R	8	LONG
		K		ARR	
593	1-6	K		ARR	
602	2	L	R	8	ALLISON
		K		ARR	
605	2	L	T	8	ALLISON
		K		ARR	
612	2	K		ARR	
622	1	L	F	8	TRIPPY
632	5	L	M	8	TAYLOR
		K		ARR	
642	1	L	S	8	KOLAS
645	1	K		ARR	BLOZIS
648	1	K		ARR	
652	1	K		ARR	
662	1	K		ARR	
672	2	L	W	8	WALLACE
		K		ARR	
682	2	K		ARR	
685	2	K		ARR	
700.01	1-15	SK		ARR	ALLISON
700.02	1-15	SK		ARR	WILLIAMS
700.03	1-15	SK		ARR	APP
700.04	1-15	SK		ARR	BOUCHER
700.05	1-15	SK		ARR	KOLAS
700.06	1-15	SK		ARR	MARSHALL
700.07	1-15	SK		ARR	PETTIT
700.08	1-15	SK		ARR	MCCONNELL
700.09	1-15	SK		ARR	MELFI
700.10	1-15	SK		ARR	WILSON
785	1-5	B		ARR	PERMAR

793	1-5	B		ARR	CONROY
795	1	S		ARR	
999		I		ARR	
SPRING QUARTER					
303	2	L	M	8	TRIPPY
		B	W	8	TRIPPY
			M	1	TRIPPY
306	1	L	M	10	CHANDLER
386	1	L	F	8	CUMMINS
389	5	L	M	9	HEINTZ
		B	T	9	HEINTZ
403	1	L	W	8	HIATT
413	1	L	T	10	BAZLER
433	3	L	W	1	POSTLE
		B	W	2	POSTLE
			F	9	POSTLE
453	2	L	F	1	PETTIT
		B	F	2	PETTIT
463	1	L	T	11	APP
483	3	L	M	11	BOUCHER
		B	M	8	BOUCHER
			R	1	BOUCHER
486	3	L	M	1	LONG
		B	M	2	LONG
			W	9	LONG
489	1	L	T	9	HEINTZ
513	1	K		ARR	
533	4	L	T	1	BECKWITH
		K		ARR	
546	1	L	R	1	BLOZIS
549	1	L	M	11	O'BRIEN
553	1	K		ARR	
556	2	L	M	8	WILLIAMS
563	1	K		ARR	
573	1	L	F	8	HIATT
583	3	L	M	9	BOUCHER
		K		ARR	
586	3	L	M	10	LONG
		K		ARR	
593	1-6	K		ARR	
603	2	L	R	8	ALLISON
		K		ARR	
606	2	L	T	8	ALLISON
		K		ARR	
613	1	K		ARR	
623	1	L	F	8	TRIPPY
633	5	L	M	8	TAYLOR
		K		ARR	
643	1	L	S	8	KOLAS
646	1	K		ARR	
649	1	K		ARR	
653	1	K		ARR	
663	1	K		ARR	
673	2	L	W	8	WALLACE
		K		ARR	
683	2	K		ARR	
686	2	K		ARR	
700.01	1-15	SK		ARR	ALLISON
700.02	1-15	SK		ARR	WILLIAMS
700.03	1-15	SK		ARR	APP
700.04	1-15	SK		ARR	BOUCHER
700.05	1-15	SK		ARR	KOLAS
700.06	1-15	SK		ARR	MARSHALL
700.07	1-15	SK		ARR	PETTIT
700.08	1-15	SK		ARR	MCCONNELL
700.09	1-15	SK		ARR	MELFI
700.10	1-15	SK		ARR	WILSON
785	5	B		ARR	PERMAR
793	1-5	B		ARR	CONROY
795	1	S		ARR	
999		I		ARR	

## Economics

No.	Crd't.	Sec.	Day	Time	Instructor
SUMMER QUARTER					
201	5	D	MTWRF	8	
		D	MTWRF	9	
		D	MTWRF	10	
		D	MTWRF	11	
		D	MTWRF	1	
		D	MTWRF	2	
402	5	D	MTWRF	9	
		D	MTWRF	11	
442	5	L	MTW F	9	TUTTLE

## Economics (Cont'd)

		L	MTW F	11		TUTTLE
		B	T	8	-10	
		B	R	8	-10	
		B	R	10	-12	
		B	R	1	-3	
501	3	D	M W F	10		
506	3	D	M W F	9		
520	4	D	MTWR	8		
		D	MTWR	10		
		D	MTWR	1		
530	4	D	MTWR	9		
		D	MTWR	11		
580	4	D	MTWR	9		
		D	MTWR	10		
599	1-15	I	ARR			
608	4	D	MTW F	11		
684	3	D	M W F	9		
693	1-5	C	ARR			
998	1	I	ARR			
999	1	I	ARR			
SUMMER 1ST TERM						
998	1	I	ARR			
999	1	I	ARR			
SUMMER 2ND TERM						
998	1	I	ARR			
999	1	I	ARR			
AUTUMN QUARTER						
201	5	L	M W F	8		
		R	T R	8		
		R	T R	9		
		R	T R	10		
		R	T R	11		
		R	T R	12		
		R	T R	1		
		R	T R	2		
		R	T R	3		
		L	M W F	9		
		R	T R	8		
		R	T R	9		
		R	T R	10		
		R	T R	11		
		R	T R	12		
		R	T R	1		
		R	T R	2		
		R	T R	3		
		R	T R	4		
		L	M W F	1		
		R	T R	8		
		R	T R	9		
		R	T R	10		
		R	T R	11		
		R	T R	12		
		R	T R	1		
		R	T R	2		
		R	T R	3		
		R	T R	4		
		D	M W F	7	- 915P	
		D	MTWRF	1		
402	5	D	MTWRF	8		
		D	MTWRF	9		
		D	MTWRF	11		
		D	MTWRF	12		
		D	MTWRF	2		
		C	MTWRF	3		
442	5	L	MTW F	9		
		L	MTW F	11		
		L	MTW F	12		
		L	MTW F	1		
		L	MTW F	2		
		B	M	12	- 2	
		B	M	2	- 4	
		B	T	10	-12	
		B	T	12	- 2	
		B	T	2	- 4	
		B	W	12	- 2	
		B	W	2	- 4	
		B	R	8	-10	
		B	R	10	-12	
		B	R	12	- 2	
		B	R	2	- 4	

501	3	D	M W F	2		
520	4	L	M W F	9		
		R	T	9		
		R	T	1		
		R	R	9		
		R	R	1		
		R	M W F	2		
		R	T	11		
		R	T	2		
		R	R	11		
		R	R	2		
530	4	L	M W F	10		
		R	T	10		
		R	T	2		
		R	R	10		
		R	R	2		
		L	M W F	1		
		R	T	9		
		R	T	1		
		R	R	9		
		R	R	1		
553	3	D	M W F	10		HARRISON
570	5	D	MTWRF	9		
580	4	L	M W F	11		
		R	T	11		
		R	T	2		
		R	R	11		
		R	R	2		
		L	M W F	3		
		R	T	10		
		R	T	3		
		R	R	10		
		R	R	3		
599	1-15	C	ARR			
607	4	D	MTWR	10		
614	5	D	M W F	3		
625	3	D	M W F	10		
631	4	D	MTW F	9		
644	3	D	M W F	9		
646	4	D	MTW F	1		COONS
650	4	D	T R	9	-11	
663	5	D	MTWRF	11		CONDOIDE
676	4	D	MTWR	11		
683	5	D	M W F	10		MILLER
693	1-5	C	ARR			
694	1-5	D	ARR			
695	3	D	M W F	1		SHERMAN
742	3	D	M W	130-3		
800	2	D	W	5-7		
805	5	D	MTW F	11		
806	3	D	M W	3-415		
809	5	D	M W	3-5		
831	3	D	ARR			
842	2	D	F	130-3		
843	3	D	M A	5-615		
899	1-5	D	ARR			
908	3	D	ARR			EASON
940	3	D	T	7-9 P		
960	3	D	M W F	1		JAMES
998	1	I	ARR			
999	1	I	ARR			
WINTER QUARTER						
201	5	D	MTWRF	9		
		D	MTWRF	9		
		L	M W F	10		
		R	T R	8		
		R	T R	9		
		R	T R	10		
		R	T R	11		
		R	T R	12		
		R	T R	1		
		R	T R	2		
		R	T R	3		
		C	MTWRF	11		
		D	MTWRF	1		
		L	M W F	2		
		R	T R	8		
		R	T R	9		
		R	T R	10		
		R	T R	1		
		R	T R	2		
		R	T R	3		
		R	T R	4		
		L	M W F	3		
		R	T R	9		
		R	T R	10		
		R	T R	11		
		R	T R	12		
		R	T R	1		
		R	T R	2		
		R	T R	3		
		R	T R	4		
402	5	L	M W F	9		
		R	T R	8		
		R	T R	9		
		R	T R	10		



		R	T	R	11		
		R	T	R	12		
		R	T	R	1		
		R	T	R	2		
		D	1	MTWRF	1		
		L		M	W	F	1
		R		T	R		9
		R		T	R		10
		R		T	R		11
		R		T	R		12
		R		T	R		1
		R		T	R		2
		R		T	R		3
		D		M	W	F	7
442	5	L		MTW	F	9	- 915P
		L		MTW	F	11	
		L		MTW	F	12	
		L		MTW	F	2	
		J		T		10	-12
		B		T		12	- 4
		B		T		2	- 4
		B		R		8	-10
		B		R		10	-12
		B		R		12	- 2
		B		R		2	- 4
		B		F		10	-12
501	3	D		M	W	F	11
502	3	D		M	W	F	2
508	4	D		MTW	F	3	
512	3	D		M	W	F	10
520	4	L		M	W	F	9
		R		T		1	
		R		T		1	
		R		R		1	
		R		R		1	
		L		M	W	F	2
		R		T		11	
		R		T		2	
		R		R		11	
530	4	L		M	W	F	10
		R		T		10	
		R		T		2	
		R		R		10	
		R		R		2	
		L		M	W	F	1
		R		T		9	
		R		T		1	
		R		R		1	
560	3	D		M	W	F	9
580	4	L		M	W	F	11
		R		T		11	
		R		T		2	
		R		R		11	
		R		R		2	
		L		M	W	F	3
		R		T		10	
		R		T		3	
		R		R		10	
		R		R		3	
599	1-15			ARR			
613	5	D		M	W	F	3
632	4	D		M	W	F	9
640	3	D		M	W	F	8
		D		M	W	F	2
645	5	D		M	W	F	130- 3
652	4	D		MTW	R	11	
665	5	D		MTWRF	10		
670	3	D		M	W	F	3
676	4	D		MTW	R	11	
683	5	D		M	W	F	2
684	3	D		M	W	F	9
693	1- 5	C		ARR			
694K	3	D		ARR			
801	4	D		M	W	F	11
806	3	D		T	R	11	-1215
820	3	D		M	W	F	3
843	3	D		M	W	F	3
		D		M	W	5	- 615
850	3	D		T		3	- 5
899	1- 5	D		ARR			
930	3	D		ARR			
940	3	D		M		4	- 6
970	3	D		ARR			
980	3	D		T	R	830-10	
991	3- 5	D		T	R	1	- 3
998		I		ARR			
999		I		ARR			
SPRING QUARTER							
201	5	L		M	W	F	8
		R		T	R	8	
		R		T	R	9	
		R		T	R	10	
		R		T	R	11	
		R		T	R	12	

HARRISON

WALTON

JAMES RASKIND

BROWN

MILLER SHERMAN

		R	T	R	1		
		R	T	R	2		
		D		MTWRF	9		
		D		MTWRF	10		
		L		M	W	F	1
		R		T	R		9
		R		T	R		10
		R		T	R		11
		R		T	R		12
		R		T	R		1
		R		T	R		2
		R		T	R		3
		R		T	R		4
		D		MTWRF	2		
402	5	D		M	W	7	- 915P
		D		MTWRF	9		
		L		M	W	F	12
		R		T	R		8
		R		T	R		9
		R		T	R		10
		R		T	R		11
		R		T	R		12
		R		T	R		1
		R		T	R		2
		R		T	R		3
442	5	L		MTW	F	9	
		L		MTW	F	10	
		L		MTW	F	11	
		L		MTW	F	1	
		L		MTW	F	2	
		B		M		2	- 4
		B		T		10	-12
		B		T		12	- 2
		B		T		2	- 4
		B		W		12	- 2
		B		W		2	- 4
		B		R		8	-10
		B		R		10	-12
		B		R		12	- 2
		B		R		2	- 4
		B		F		10	-12
		B		F		12	- 2
500	3	D		M	W	F	2
502	3	D		M	W	F	11
520	4	L		M	W	F	9
		R		T		9	
		R		T		1	
		R		R		9	
		R		R		1	
		L		M	W	F	2
		R		T		11	
		R		T		2	
		R		R		11	
		R		R		2	
		D		MTW	F	11	
530	4	L		M	W	F	3
		R		T		10	
		R		T		10	
		R		T		2	
		R		R		10	
		R		R		2	
		L		M	W	F	1
		R		T		9	
		R		T		1	
		R		R		1	
		R		R		1	
		D		MTW	F	2	
		R		T		11	
		R		T		2	
		R		R		11	
		R		R		2	
		D		MTW	F	11	
		D		MTW	F	3	
530	4	L		M	W	F	10
		R		T		10	
		R		T		2	
		R		R		10	
		R		R		2	
		L		M	W	F	1
		R		T		9	
		R		T		1	
		R		R		1	
		R		R		1	
		D		MTW	F	2	
560	3	D		M	W	F	11
570	5	D		MTWRF	1		
580	4	L		M	W	F	11
		R		T		11	
		R		T		2	
		R		R		11	
		R		R		2	
		L		M	W	F	3
		R		T		10	
		R		T		3	
		R		R		10	
		R		R		3	
		D		MTW	R	9	
599	1-15	C		ARR			
608	4	D		MTW	R	9	
633	4	D		MTW	F	9	
641	3	D		M	W	F	8
		D		M	W	F	2
666	3	D		M	W	F	10
677	4	D		MTW	F	1	
680	3	D		M	W	F	9
684	3	D		M	W	F	3
688	4	D		T	R	1	- 3
693	1- 5	C		ARR			
694	1- 5	D		ARR			
802	4	D		M	W	F	11
803	3	D		M		4	- 6
805	5	D		MTW	F	3	
808	5	D		M	W	3	- 5
821	3	D		M	W	F	10

HARRISON

EASON

JAMES

PARNES

Economics (Cont'd)

843	3	D	M W	5	- 615
899	1- 5	D	ARR		
910	3	D	ARR		
920	3	D	ARR		
981	3	D	ARR		
982	3	D	W	4	- 6
998		I	ARR		
999		I	ARR		

Education

No. Crd't. Sec. Day Time Instructor

SUMMER QUARTER

108	3	L	M W	12	
		R	R	8	
		R	R	9	
		R	R	10	
		R	F	8	
		R	F	9	
		R	F	10	
		R	F	11	
251	3- 6	W	ARR		
289.06	2- 5	S	ARR		
289.09	2- 5	S	F	9	
		B	ARR		
546	4	D	MTWRF	8	
551	4	B	MTWRF	8	VOELKNER
560	4	D	MTWR	10	
561	4	D	MTWR	11	
587.25	3	W	ARR		
	6	W	ARR		
	9	W	ARR		
587.26	3	W	ARR		
	6	W	ARR		
	9	W	ARR		
588.32	3	W	ARR		
	6	W	ARR		
	9	W	ARR		
621	4	D	MTWRF	9	LAZAR
624	3	D	M W F	9	JEWETT
625	3	B	M W	1 - 4	HOWE
			F	1 - 3	
627	3	B	M W	1 - 4	VOELKER
			F	1 - 3	
632	4	D	MTWR	8	
		D	MTWR	9	
		D	MTWR	10	
		D	MTWR	11	
		D	MTWR	12	
		D	MTWR	1	
637	3	L	M W F	11	
		R	ARR		
		L	M W F	2	
690	3	S	ARR		
691	6- 8	B	ARR		
693.09	1- 4	I	ARR		LEWIS
693.10	1- 4	I	ARR		
693.21	1- 4	I	ARR		
693.22	1- 4	I	ARR		REESE
693.23	1- 4	I	ARR		
693.25	1- 4	I	ARR		
693.26	1- 4	I	ARR		
693.27	1- 4	I	ARR		
693.28	1- 4	I	ARR		JEWETT
693.29	1- 4	I	ARR		
693.33	1- 4	I	ARR		
693.34	1- 4	I	ARR		
693.35	1- 4	I	ARR		
693.36	1- 4	I	ARR		
693.40	1- 4	I	ARR		
693.41	1- 4	I	ARR		
693.43	1- 4	I	ARR		
693.44	1- 4	I	ARR		
693.45	1- 4	I	ARR		
693.46	1- 4	I	ARR		
693.47	1- 4	I	ARR		
693.48	1- 4	I	ARR		
724	3	D	MT R	9	SUTTON
843	4	D	MTWR	10	
844	4	D	MTWRF	8	CROSSWHITE
849	4	D	MTWRF	10	SCHLESSING

850	3	D	MTWR	11		HOWE
851	4	D	T R	2 - 4		RICHARDSON
881.8	3	I	M W	9 -11		WIGTIL
881C	3	I	T R	9 -11		WIGTIL
915	3	D	W	9 -1130		MUESSIG
925.23	2- 5	S	MTWRF	1 - 3		WELLS
925.25	2- 5	S	R	2 - 4		
925.26	2- 5	S	M	1 - 3		CROSSWHITE
925.27	2- 5	S	T	2 - 4		SCHLESSING
925.28	2- 5	S	W	130- 4		MUESSIG
		S	T	2 - 430		GILLIOM
925.34	2- 5	S	T	1 - 3		WIGTIL
925.36	2- 5	S	T	9 -1130		COTTRELL
925.44	2- 5	S	ARR			LARMEE
925.48	2- 5	S	ARR			
925.49	2- 5	S	T	1 - 3		
927	3	D	MT R	11		SUTTON
933	9	W	ARR			
938	3	D	T R	2 - 330		BURNETT
939	3	S	M W	10 -1130		FRANKIE
		S	T R	2 - 330		
941	5	L	T R	2 - 4		KIRCHER
		I	ARR	1 HR		
942	3	D	T R	2 - 330		
944	5	D	M W	10 -12		COTTRELL
			ARR	1 HR		
966	3	D	ARR			
993.09	3	I	ARR			LEWIS
993.23	3	I	ARR			
993.26	3	I	ARR			
993.27	3	I	ARR			OHLIGER
993.33	3	I	ARR			
993.34	3	I	ARR			
993.43	3	I	ARR			TYLER
993.44	3	I	ARR			
993.48	3	I	ARR			
999.09		I	ARR			LEWIS
999.22		I	ARR			REESE
999.25		I	ARR			JENNINGS
999.26		I	ARR			EBERHART
999.27		I	ARR			
999.28		I	ARR			
999.33		I	ARR			
999.34		I	ARR			
999.35		I	ARR			
999.36		I	ARR			
999.43		I	ARR			
999.44		I	ARR			
999.45		I	ARR			
999.48		I	ARR			
999.49		I	ARR			
SUMMER 1ST TERM						
243	5	B	MTWRF	8 -12		
		B	MTWRF	1 - 5		
289.09	2- 5	S	F	9		
433	3	B	MTWRF	2 - 4		HOFFMAN
435	5	D	MTWRF	8 -10		
		D	MTWRF	10 -12		
442	3	D	MTWR	1 - 3		
		B	ARR			
460	4	D	MTWRF	10 -1130		
		D	MTWRF	1130- 1		
461	4	D	MTWRF	8		TEWKSBURY
		D	MTWRF	9		TEWKSBURY
467	3	D	MTWRF	9		KOSTE
		D	MTWRF	1		
465	3	D	MTWRF	2		
501	3	D	MTWRF	9		
		D	MTWRF	10		MILLER
502A	3	D	MTWRF	10		HARDING
502B	3	LB	MTWRF	8 - 930		STULL
		LB	MTWRF	930-11		STULL
507	4	D	MTWRF	8		
		D	MTWRF	10		KERBER
508	4	D	MTWRF	8 - 930		
		D	MTWRF	930-11		
511	3	L	T R	8 -10		LANGUIS
		B	M W F	8 -10		
		L	T R	10 -12		
		B	M W F	10 -12		
513	4	L	MTWRF	11 -1230		KERBER
		L	MTWRF	1230- 2		
526	4	D	MTWR	9 -11		GILLIOM
529	3	D	MTWRF	10		
556	4	O	MTWR	1 - 3		LEWIS
602	3	D	MTWRF	8		
613	3	D	MTWRF	9		
614	3	D	MTWRF	10		
616B	4	D	MTWR	8 -10		OTTO
617	4	D	MT R F	10 -12		OTTO
652	3	D	MTWRF	8		JOHNSON
653	3	D	MTWRF	10		OKADA
665	3	D	MTWRF	12		PIRELEY
666	3	D	MTWRF	9		HUNT
668	3	D	MTWRF	10		
672	3	D	MTWRF	11		OHLIGER



673	3	D	MTWRF	2	DOWLING	958	3	D	MTWRF	1	CANDOLE
675	3	D	MTWR	9					W	ARR	
		D	MTWR	ARR 2 HRS		970	3	D	MTWRF	10	
690	3	S	MTWRF	1 - 4		993.10	3	I		ARR	
692.10	4	D	MTWRF	1 - 5	LANGUIS	993.21	3	I		ARR	
692.28	4	D		ARR		993.22	3	I		ARR	REESE
692.33	4	D	MTWRF	9 - 4		993.23	3	I		ARR	
692.44	4	D	MTWRF	9 - 3	STAUB	993.26	3	I		ARR	
692.49	4	D	MTWRF	9 - 4		993.34	3	I		ARR	
693.09	1- 4	I		ARR	LEWIS	993.40	3	I		ARR	
693.10	1- 4	I		ARR		993.41	3	I		ARR	
693.21	1- 4	I		ARR		993.46	3	I		ARR	CASSIDY
693.22	1- 4	I		ARR	REESE	999.09		I		ARR	
693.23	1- 4	I		ARR		999.10		I		ARR	
693.25	1- 4	I		ARR		999.21		I		ARR	
693.26	1- 4	I		ARR		999.23		I		ARR	WELLS
693.28	1- 4	I		ARR		999.26		I		ARR	
693.29	1- 4	I		ARR	JEWETT	999.34		I		ARR	
693.33	1- 4	I		ARR		999.35		I		ARR	
693.34	1- 4	I		ARR		999.40		I		ARR	
693.35	1- 4	I		ARR		999.41		I		ARR	
693.36	1- 4	I		ARR		999.47		I		ARR	
693.40	1- 4	I		ARR		SUMMER 2ND TERM					
693.41	1- 4	I		ARR		243	5	B	MTWRF	1 - 5	
693.43	1- 4	I		ARR		289.09	2- 5	S	F	9	LEWIS
693.44	1- 4	I		ARR		442	3	D	MTWRF	1 - 3	SCHOEN
693.45	1- 4	I		ARR					B	ARR	
693.46	1- 4	I		ARR		460	4	LRB	MTWRF	8 -10	
693.47	1- 4	I		ARR		461	4	D	MTWRF	1130- 1	
693.48	1- 4	I		ARR		467	3	D	MTWRF	830-10	KOSTE
693.49	1- 4	I		ARR					O	MTWRF 1 - 230	
715	3	D	MTWRF	11	OKADA	501	3	D	MTWRF	8 - 930	
717	3	D	MTWRF	8	HUNT	502	3	L	MTWRF	1130- 1	
801	3	D	MTWRF	10	WELLS	507	4	L	MTWRF	10 -1130	KERBER
807	3	D	MTWRF	9		508	4	LB	MTWRF	8 -10	
811	3	B	MTWRF	10	LANGUIS	511	4	L	T R	8 -10	
812	3	D	MTWRF	9	HARDING				B	M W F 8 -10	
813	3	D	MTWRF	12	BURNS				B	M W F 10 -12	
814	3	D	MTWRF	8	TOMLINSON	513	4	L	MTWRF	1 - 3	
816	2- 5	D	MTWRF	8	COON	605	3	D	MTWRF	8	
817	3	D	MTWRF	10	KOSTE	606	3	D	MTWRF	10	
818	3	D	MTWRF	10	FRAZIER	610	3	D	MTWRF	9	
819	3	D	MTWRF	9	BURR	613	3	D	MTWRF	9	
821	3	D	MTWRF	8		616	4	LR	MTWRF	8 -10	
824	3	D	MTWRF	9	MILLER	624	3	D	MTWRF	9	
828	3	D	MTWRF	11	BURNS	631	3	D	MTWR	1 - 3	LEWIS
829	3	D	MTWRF	11	FRAZIER	654	3	D	MTWRF	11	OKADA
833	3	D	MTWRF	8	TOWERS				ARR	1 HR	
835	3	D	MTWRF	9	LUX	655	3	D	MTWRF	9	OKADA
836	3	D	MTWRF	10	TOWERS				ARR	1 HR	
841	3	D	MTWRF	11	LAZAR	656	3	D	MTWRF	10	OKADA
842	3	D	MTWRF	1	OSBORNE				ARR	1 HR	
853	3	D	MTWR	12 - 2	HUELSMAN	657	3	D	MTWRF	2	CAVIN
855	3	D		ARR	HUCK				ARR	1 HR	
858	3	D	T R	1 - 330		667	3	D	MTWRF	9	HOTT
860	3	D	MTWRF	9	KLOHR				ARR	1 HR	
861	3	D	MTWRF	11	BURR	669	3	D	MTWRF	10	HUNT
862	3	D	MTWRF	1	ARISMAN				ARR	1 HR	
863	3	D	MTWRF	10	ARISMAN	675	3	D	MTWR	9	EBOCH
864	3	D	MTWRF	9					ARR	2 HRS	
867	2- 5	BC	T R	12 - 2				D	MTWR	10	EBOCH
869	3	D	M W	12 - 2		692.10	4	S	MTWRF	1 - 5	LANGUIS
			F	1		692.44	4	S	MTWRF	900- 300	LAUGHLIN
874	3	D	MTWRF	8	RICCIO	693.09	1- 4	I		ARR	LEWIS
875	3	D	MTWRF	9	PETERS	693.10	1- 4	I		ARR	
876	3	D	MTWRF	9	KEMP	693.21	1- 4	I		ARR	
878	3	D	MTWRF	10	RICCIO	693.22	1- 4	I		ARR	REESE
879	3	D	MTWRF	8	KEMP	693.23	1- 4	I		ARR	JENNINGS
880	3	D	MTWRF	10		693.25	1- 4	I		ARR	
911	3	D	MTWRF	2	FOX	693.26	1- 4	I		ARR	
912	3	D	MTWRF	1		693.27	1- 4	I		ARR	
913	3	D	MTWRF	10	KIRCHER	693.28	1- 4	I		ARR	
914	3	D	MTWRF	11		693.29	1- 4	I		ARR	
925.09	2- 5	S	T R	9 -11	RIEKE	693.33	1- 4	I		ARR	DOWLING
925.10	2- 5	S	M	1 - 3	TOMLINSON	693.34	1- 4	I		ARR	
		S	T	1 - 3		693.35	1- 4	I		ARR	
		S	W	1 - 3		693.40	1- 4	I		ARR	
925.21	2- 5	S	MTWRF	11		693.41	1- 4	I		ARR	
925.22	2- 5	S		ARR	REESE	693.43	1- 4	I		ARR	
925.46	2- 5	S		ARR		693.44	1- 4	I		ARR	
925.47	2- 5	S	R	3 - 430	CASSIDY	693.45	1- 4	I		ARR	
925.49	2- 5	S	T R	1 - 3	KLOHR	693.46	1- 4	I		ARR	
929	3	D	MTWRF	1	MEHL	693.47	1- 4	I		ARR	
946	3	D	MTWRF	8		693.48	1- 4	I		ARR	
		D	MTWRF	10	NYSTRAND	693.49	1- 4	I		ARR	
947	3	D	MTWRF	9		718	3	D	MTWRF	12	
949	2- 3	D	MTWRF	8	LAUGHLIN				ARR	1 HR	
950	3	D	MTWRF	11		719	3	D	MTWRF	8	HUNT
953	3	D	MTWRF	10					ARR	1 HR	
954	3	D	MTWRF	9	LAUGHLIN	732	3	D	MTWR	1 - 3	
955	3	D	MTWRF	11	LARMEE	802	3	D	MTWRF	8 - 930	JENNINGS
956	3	D	MTWRF	8	HACK	805	2	D	MTWRF	10	WELLS
957	3	D	MTWRF	10	HACK	813	3	D	MTWRF	8 -10	
						815	3	D	MTWRF	10 -12	TOMLINSON

### Education (Cont'd)

819	3	D	MTWRF	8 -10	BURR	442	3	D	MTWR	11 - 1	DUNCAN
820	3	D	MTWRF	8 -10	HARDING			D	M W F	3	LEWIS
821	3	D	MTWRF	1 - 3	GALLOWAY	460	4	B	ARR		
823	3	D	MTWRF	10 -12	KOSTE			M	8 -10		
827	3	D	MTWRF	1 - 3	KERBER			R	T	8 -10	STROM
834	3	D	MTWRF	8	RAY			R	T	10 -12	
836	3- 5	I	MTWRF	10	TOWERS			R	W	8 -10	
837	3	D	MTWRF	9	RAY			R	R	8 -10	
847	3	D	MTWRF	1	JOHNSON			R	R	10 -12	
858	3	D	T R	- 330				R	F	8 -10	
860	3	D	MTWRF	10 -12	KLOHR			B	T	8 -12	
861	3	D	MTWRF	10 -12	FRAZIER			B	R	8 -12	
862	3	D	MTWRF	8 -10	FRYMIER			B	T R	7 - 9 P	
866	3	D	MTWRF	8 -10	FRAZIER			L	S	ARR	
869	3	D	MTWRF	1 - 3	DUNCAN	461	3	D	M W	11 -1230	FRAZIER
873	3	D	MTWRF	1 - 3	FRYMIER			D	T R	430- 6	
874	3	D	MTWRF	11	PETERS			D	W F	8 - 930	
875	3	S	MTWRF	10	KEMP			D	W F	930-11	ORR
881A	3	I	MTWRF	1		467	3	D	W F	11 -1230	LOOMIS
912	3	D	MTWRF	2	FOX			D	M W	4 - 530	
914	3	D	MTWRF	11				D	W F	11 -1230	
922	3	D	MTWRF	10 -12	GALLOWAY			D	W F	1230- 2	
925,21	3	S	MTWRF	11				D	W F	2 - 330	
925,45	2- 5	S	MT R	8 -10	OTTO			D	W F	330- 5	
925,46	2- 5	S	ARR					D	T R	12 - 130	KOSTE
925,47	2- 5	S	R	3 - 430	HUELSMAN			D	T R	130- 3	HUCK
946	3	D	MTWRF	10 -12	HACK	501	3	D	T R	430- 6	
947	3	D	MTWRF	8 -10				D	M W	430- 6	
948	3	D	MTWRF	8 -10	STAUB	502A	3	D	T R	4 - 530	BOZEMAN
951	3	D	MTWRF	8 -10	LARMEE			D	M W F	9	HARDING
952	3	D	MTWRF	10 -12	STAUB			D	M W F	10	HARDING
971	3	D	MTWRF	11		502B	3	L	T R	9 -1030	STULL
993,10	3	I	ARR					D	T R	1030-12	STULL
993,21	3	I	ARR			502	3	B	M	10 -12	STULL
993,23	3	I	ARR					B	M	12 - 2	STULL
993,26	3	I	ARR					B	M	2 - 4	STULL
993,34	3	I	ARR					B	M	4 - 6	STULL
993,40	3	I	ARR			507	3	D	T R	11 -1230	KERBER
993,41	3	I	ARR					D	T R	4 - 530	
993,47	3	I	ARR					D	W F	12 - 130	
999,09	I		ARR		LEWIS			D	W F	130- 3	
999,10	I		ARR			508	4	D	M W	8 -10	TOMLINSON
999,21	I		ARR					D	T R	8 -12	TOMLINSON
999,23	I		ARR		JENNINGS			D	M W	10 -12	TOMLINSON
999,26	I		ARR					B	T R	8 -12	TOMLINSON
999,34	I		ARR					D	T R	8 -10	TEWKSBURY
999,35	I		ARR					B	M W	8 -12	TEWKSBURY
999,40	I		ARR					D	T R	10 -12	TEWKSBURY
999,41	I		ARR					B	M W	8 -12	TEWKSBURY
AUTUMN QUARTER											
108	3	L	M W	8	RICCIO			B	M W	8 -12	KOSTE
		R R	W	1				O	T R	2 - 4	KOSTE
		R R	W	2				B	M W	12 - 4	LOOMIS
		R R	W	3		511	4	L	M	12 - 2	LANGUIS
		R R	R	8				L	M	2 - 4	
		R R	R	9				L	M	4 - 6	
		R R	R	10				B	M W	6 - 8 P	
		R R	R	11				B	T R	8 -10	
		R R	R	1				B	T R	10 -12	
		R R	R	2				B	T R	12 - 2	
		R R	R	3				B	T R	2 - 4	
		R R	F	8				B	T R	4 - 6	
		R R	F	9				B	T R	6 - 8 P	
		R R	F	10				B	W F	8 -10	
		R R	F	11				B	W F	10 -12	
		LIO	M W F	8				B	W F	12 - 2	
		LIO	M W	5 - 630				B	W F	2 - 4	
120	4	B	MTWRF	10 -12	RAY	513	4	D	W F	4 - 6	
206	2	B	MT RF	8				B	M W	8 -10	
210	4	B	MTWR	1 - 3				B	R	8 -12	
		B	MTWR	3 - 5				D	M W	10 -12	
231	4	B	MTWRF	10 -12	BLUM			B	R	8 -12	
233	4	B	MTWRF	4 - 6	BUFFER			D	T R	8 -10	KERBER
235	4	B	MTWRF	2 - 4	JENKINS			B	W	8 -12	
242	3	D	T R	8 -10	BLUM			D	T R	8 -10	
243	5	B	MTWRF	8 -10				B	W	8 -12	
		B	MTWRF	12 - 2				D	T R	10 -12	
		B	MTWRF	2 - 4				B	W	8 -12	
251	3- 6	W	ARR					D	T R	12 - 2	KING
255	4	B	MTWRF	8 -10				B	W	12 - 4	
289,04	3	S	M W F	9 -12	BLUM	520	2	B	M R	3	WELLS
289,05	3	S	ARR			521	2	B	W F	3	WELLS
289,06	2- 5	S	T	8	MAND	524	3	O	M W F	4	WELLS
		S	W	12	MAND	526	4	D	T R	9 -11	MUESSIG
289,07	2- 5	S	T	8	MAND			O	T R	2 - 4	MUESSIG
		S	W	12	MAND			O	M W	9 -11	GILLIOM
289,08	2- 5	S	ARR		ALLENBAUGH	532	3	D	T	7 - 930P	RAY
289,09	2- 5	S	F	9	LEWIS	540B	4	O	T R	2 - 4	OTTO
420	4	B	MTWRF	10 -12	BUFFER	540C	4	O	TWRF	8	BROWN
424	4	B	MTWRF	4 - 6		546	4	D	MTWR	9	
433	3	L	T	2 - 4	HOFFMAN			D	MTWR	11	OSBORNE
		B	R	2 - 4	HOFFMAN	551	4	B	MTWR	8	SCHLESINGE
435	5	D	MTWR	8 -10	DUNCAN			B	MTWR	9	VOELKER



556	4	D	MTWR	9	LEWIS	693.29	1-4	I	ARR		
560	4	D	MTWR	2	STEWART	693.33	1-4	I	ARR		
			MTWR	3	STEWART	693.34	1-4	I	ARR		
561	4	D	MTWR	2	BATEMAN	693.35	1-4	I	ARR		
			MTWR	3	BATEMAN	693.36	1-4	I	ARR		
575	3-6	D		ARR	REESE	693.40	1-4	I	ARR		SANDERS
585.10	9	W		ARR	MILLER	693.41	1-4	I	ARR		KIRCHER
	15	W	MTWRF	8 - 430	MILLER	693.43	1-4	I	ARR		TYLER
585.11	6	W		ARR	MILLER	693.44	1-4	I	ARR		
585.12	12	W			ER	693.45	1-4	I	ARR		
	15	W	T R	1 - 430		693.46	1-4	I	R	1 - 3	DALE
586.03	3-7	W	MTWRF	8 - 430	MILLER	693.47	1-4	I			
586.07	3-7	W	T	5 - 7 P	MITCHELL	693.48	1-4	I	ARR		
586.08	3-7	W	R	4 - 6	COATES	693.49	1-4	I	ARR		
586.14	3-7	W		230-4	ALLENBAUGH	717	3	D	T	7 - 930P	HUNT
586.15	3-7	W	T	4	BENNER	722	3	D	T	1 - 4	SUTTON
586.45	3-7	W		ARR	BONNER	723	3	D	T	7 - 930P	SANDERS
587.03	3-15	W	T	5 - 7	OTTO	768	3	D	T	7 - 930P	ANDREWS
587.07	3-15	W	T	7 - 930P	BARKAN	800	3	D	T	7 - 930P	HANNA
587.08	3-15	W	T	330-530	COATES	807	3	D	W	7 - 930P	
587.09	3-15	W	W	4 - 6	SCHROEDER	811	3	B	R	7 - 930P	LANGUIS
587.14	3-8	W	W	230-4	LEWIS	812	3	D	M	7 - 930P	STULL
587.15	3-8	W	M		BENNER	817	3	D	T	7 - 930P	HUCK
587.21	3-15	W		ARR	RAMSEY	818	3	D	R	4 - 630	FRAZIER
587.22	3-15	W		ARR		823	3	D	T	4 - 630	KOSTE
587.23	3-15	W	T	3 - 5	REESE	827	3	D	W	4 - 630	KING
587.24	3-15	W		ARR	WELLS	834	3	D	T	7 - 930P	RAY
587.25	3-15	W	W	4 - 6	COATES	842	3	D	M W F	1	LAZAR
587.26	3-15	W	W	4 - 6	ZIDONIS	858	3	D	T R	1 - 230	
587.27	3-15	W	W	7 - 930P	VOELKER				T	4 - 630	
587.28	3-15	W	W	4 - 6	GILLIOM				R	7 - 930P	
587.29	3-15	W		ARR		859	3	D	T	7 - 930P	ALBERTY
587.45	3-15	W		ARR		860	3	D	M	7 - 930P	KLOHR
587.53	3-15	W		ARR		861	3	D	T	7 - 930P	BURR
588.04	3-15	W	R	9 - 12	BLUM	862	3	D	W	4 - 630	FRYMIER
588.09	3-15	W	W	4 - 630	LEWIS	863	3	D	R	7 - 930P	ARISMAN
588.30	3-15	W		ARR		864	3	D	T	4 - 630	DUNCAN
588.32	3-15	W	W	4 - 6	HUNT	870	4	S	M	5 - 9 P	FRAZIER
588.54	3-15	W	T	4 - 6	AMOS	873	3	S		7 - 930P	FRYMIER
608	2-5	W		ARR		874	3	D	M W F	9	PETERS
610	3	D	T	7 - 930P	LUX				T	4 - 630	RICCIO
612	3	D	M	7 - 930P	ZIDONIS	875	3	S	M	4 - 630	KEMP
613	3	D	T R	4 - 530		876	3	D	S	9 - 12	RICCIO
616A	4	D	TWRF	3	ALLEN	877	3	D	T	7 - 930P	KEMP
616B	4	D	TWRF	4	ALLEN	879	5	D	M	7 - 930P	PETERS
617	4	D	T R	4 - 6	OTTO	881A	3	I	M	7 - 930P	WIGTIL
621	4	D	MTWR	2	LAZAR	881B	3	I	M	3 - 6	WIGTIL
622	3	D	T R	43C-6	OSBORNE				W	4 - 6	
624	3	D	M	7 - 930P	JEWETT	881C	3	I	M	4 - 6 P	WIGTIL
625	3	B	M W F	1 - 3	HOWE				R	3 - 6	
626	3	B	T R S	10 - 12	MAYER	885.32	3-6	W	ARR		HUNT
627	3	B	M W F	3 - 5	SCHLESSING	885.54	3-6	W	ARR		
632	4					885.55	3-6	W	ARR		
			MTWR	8		899	1-5	S	R	7 - 930P	HACK
			MTWR	9		911	3	D	R	7 - 930P	
			MTWR	10		913	3	D	W	4 - 630	KIRCHER
			MTWR	11		925.09	2-5	S	R	7 - 930P	LEWIS
			MTWR	12					T	1 - 3	DOUGLAS
			MTWR	1		925.10	2-5	S	ARR		HUCK, KING
			MTWR	2					W	4 - 6	TOMLINSON
			MTWR	3					W	4 - 630	HARDING
636	4	D	T R	7 - 930P	MACCIA	925.21	2-5	S	R	7 - 930P	
637	3	L	M W	11		925.25	2-5	S	R	7 - 9 P	ZIDONIS
		R	M W	2		925.26	2-5	S	W	3 - 5	TRIMBLE
		R	R	9		925.27	2-5	S	T	3 - 5	HOWE
		R	R	10					W	3 - 5	SCHLESINGE
		R	R	11		925.28	2-5	S	T	2 - 430	JEWETT
		R	R	12					ARR		GLATT
		R	F	8		925.34	2-5	S	W	4 - 630	KEMP
		R	F	9		925.35	3	S	T R	2 - 330	STRAUB
		R	F	10					T	1 - 3	BURNETT
		R	F	11		925.36	2-5	S	T	9 - 1130	COTTRELL
		R	F	1		925.40	2-5	S	T	ARR	SANDERS
649	3	D	M	6 - 830P	REESE				ARR		SUTTON
652	3	D	T	7 - 930P	JOHNSON	925.41	2-5	S	ARR		
655	3	D	W	7 - 930P	OKADA	925.43	2-5	S	M	730-930	TYLER
659	3	D	T	4 - 630		925.44	2-5	S	ARR		LARMEE
660	3	D	R	4 - 630		925.45	2-5	S	ARR		PIMSLEUR
662	3	D	T	9 - 12	BECKER	925.46	2-5	S	ARR		DALE
666	3	D	T	4 - 630	HOTT	925.47	2-5	S	R	4 - 6	
672	3	D	M	7 - 930P	OHLLIGER	925.48	2-5	S	ARR		
			T	7 - 930P	OHLLIGER	925.49	2-5	S	F	9 - 12	DUNCAN
675	3	D	T R	2 - 4					T	4 - 6	KLOHR
			T R	4 - 6		925.56	2-5	S	W	4 - 6	HUCK
			T	7 - 930P	EBOCH	928	3	D	M	7 - 930P	MEHL
677	3	D	M W	2 - 4	TYLER	933	9		ARR		DOWLING
690	3	S				934	3	D	T	7 - 930P	DOWLING
693.05	3	I		ARR		937	3	D	M	1 - 3	ANDREWS
693.09	1-4	I		ARR	LEWIS				W	1	
693.10	1-4	I		ARR		939	3	D	M W	2 - 330	FRANKIE
693.21	1-4	I		ARR		940	3	D	M W	10 - 1130	FRANKIE
693.22	1-4	I		ARR	REESE	941	5	D	T R	10 - 12	KIRCHER
693.23	1-4	I		ARR	HANNA, WEL				ARR	1 HR	KIRCHER
693.25	1-4	I	T	7 - 930P	EBERHART	943	3	D	T R	10 - 1130	BURNETT
693.26	1-4	I		ARR		944	5	D	M W	10 - 12	COTTRELL
693.27	1-4	I		ARR					ARR	1 HR	
693.28	1-4	I		ARR	GILLIOM	946	3	D	M W	430-6	LAUGHLIN

[illegible]



	3-7	W	T	7	- 930P	COATES	693.44	1-4	I	ARR		
586.08	3-7	W	R	4	- 6	SCHROEDER	693.45	1-4	I	ARR		
586.14	3-7	W	W	2		BENNER	693.46	1-4	I	ARR		
586.15	3-7	W	T	4		BONNEY	693.47	1-4	I	ARR		
586.45	3-7	W	T	ARR		OTTO	693.48	1-4	I	ARR		
587.03	3-15	W	W	5	- 7 P	BARKAN	693.49	1-4	I	ARR		
						BARKAN	713	4	D		4 - 630	
587.07	3-15	W	T	7	- 930P	COATES	724	3	D	T	7 - 930P	SUTTON
587.08	3-15	W	T	4	- 6	SCHROEDER	725	3	D	T	7 - 930P	SANDERS
587.09	3-15	W	W	4	- 6	LEWIS	732	3	D	W	7 - 930P	
587.14	3-8	W	W	3	- 5	BENNER	768	3	D	M	7 - 930P	ANDREWS
587.15	3-8	W	M W	4		SIMMONS	805	2	D	T	7 - 9 P	WELLS
587.21	3-15	W	ARR				813	3	D	R	4 - 630	KING
587.23	3-15	W	T	3	- 5	JENNINGS	815	3	D	W	4 - 630	TOMLINSON
587.24	3-15	W	ARR			COATES	819	3	D	M W	7 - 930P	BURR
587.25	3-15	W	W	4	- 6	ZIDONIS	821	3	D	W	7 - 930P	LOOMIS
587.26	3-15	W	W	4	- 6		824	3	D	W	4 - 630	BOZEMAN
587.27	3-15	W	W	7	- 930P	VOELKER	828	3	D	T	4 - 630	HUCK
587.28	3-15	W	W	4	- 6	GILLIOM	832	3	D	T	7 - 930P	TOWERS
587.29	3-15	W	ARR				835	3	D	W	7 - 930P	LUX
587.45	3-15	W	ARR				839A	3	D	W	7 - 930P	ALLEN
588.04	3-15	W	R	9	-12	BLUM	841	3	D	T R	43C- 6	LAZAR
588.09	3-15	W	W	4	- 630	LEWIS	843	3	D	M W F	1	TRIMBLE
588.30	3-15	W	ARR				850	4	D	T R	2 - 4	RICHARDSON
588.32	3-15	W	W	4	- 6	HUNT	855	3	D	ARR		HUCK
588.54	3-15	W	T	4	- 6	AMOS	858	3	D	M W	1 - 230	
612	3	D	T R	4	- 530	ZIDONIS				W	4 - 630	
613	3	D	T R	4	- 530					D	7 - 930P	
614	3	S	T	7	-10 P		860	3	D	R	7 - 930P	KLOHR
616A	4	D	T WRF	3		ALLEN	861	3	D	W	7 - 930P	BURR
616B	4	D	MT RF	1		OTTO	862	3	D	T	4 - 630	FRYMIER
616C	4	D	ARR				865	3	D	M W	2 - 330	KLOHR
616D	4	D	ARR				869	3	D	W	4 - 630	DUNCAN
618	3	D	M W F	9			871	4	S	M	5 - 9 P	FRYMIER
621	4	D	MTWR	2		LAZER	874	3	D	R	4 - 630	RICCIO
624	3	D	M	7	- 930P	JEWETT	875	3	S	M W	11 -1230	KEMP
625	3	B	M W F	10	-12	HOWE	876	3	D	S	9 -12	RICCIO
627	3	B	M W F	1	- 3	SCHLESSING	878	3	D	W	4 - 630	KEMP
631	4	D	MTWR	9		LEWIS	879	5	D	M W F	9	PETERS
632	4	D	MTWR	8			880	3	D	W	7 - 930P	PETERS
			MTWR	9			881A	3	I	M W F	8	WIGTIL
			MTWR	10			881B	3	I	M	3 - 630P	WIGTIL
			MTWR	11			881C	3	I	T	3 - 630	WIGTIL
			MTWR	12			885.32	3- 6 W		ARR		HUNT
			MTWR	1			885.54	3- 6 W		ARR		
			MTWR	2			885.55	3- 6 W		ARR		
			MTWR	3			912	3	D	R	7 - 930P	
636	4	D	T R	7	- 930P	MEHL	913	3	D	W	4 - 630	KIRCHER
637	3	L	M W	11		MACCIA	917	3	D	M	4 - 630	KIRCHER
			M W	2			920	3	D	R	7 - 930P	LANGUIS
			R	8			922	3	D	T	7 - 930P	GALLOWAY
			R	9			925.09	3- 5 S		W	7 - 930P	LEWIS
			R	10						T	1 - 3	BROOKS
			R	11			925.10	3- 5 S	M	4 - 6		TOMLINSON
			R	1			925.21	3- 5 S	R	7 - 930P		
			R	2			925.22	2- 5 S	M	6 - 830P		REESE
			R	3			925.25	2- 5 S	R	7 - 9 P		EBERHART
			R	4			925.26	2- 5 S	W	3 - 5		CROSSWHITE
			R	8						ARR		OSBORNE
			R	9			925.27	2- 5 S	W	3 - 5		RICHARDSON
			R	10			925.28	2- 5 S	T	7 - 930P		JEWETT
			R	11						ARR		GLATT
			R	F			925.34	2- 5 S	T	4 - 630		PETERS
			R	F			925.35	2- 5 S	T	1 - 4		FRANKIE
			R	F					M	9 -1130		COON
			R	F					W	2 - 430		ANDREWS
652	3	D	R	7	- 930P	JOHNSON	925.36	2- 5 S		ARR		
653	3	D	T	7	- 930P	OKADA	925.41	3	S	ARR		
654	3	D	W	7	- 930P	OKADA	925.43	2- 5 S	M	730- 930P		TYLER
661	3	D	T	4	- 630		925.44	2- 5 S		ARR		LARREE
663	3	D	T	4	- 630	BECKER	925.45	4	S	ARR		
665	3	D	W	7	- 630	BIRELEY	925.46	2- 5 S		ARR		
667	3	D	T	4	- 630	HUNT	925.47	2- 5 S	R	4 - 6		
668	3	D	M	4	- 630	HUNT	925.48	2- 5 S		ARR		
672	3	D	T	7	- 930P	OHLLIGER	925.49	2- 5 S	T	4 - 6		ALBERTY
673	3	D	R	7	- 930P	DOWLING	925.50	2- 5 S	T	7 - 930P		BLANKE
675	3	D	T R	2	- 4		927	3	D	M W	4 - 530	SUTTON
			T R	4	- 6	EBOCH	931	3	D	T	7 - 930P	DOWLING
							933	9	D	ARR		DOWLING
690	3	S	ARR				937	3	D	T	1 - 3	ANDREWS
693.05	1-4	I	ARR						R	1		
693.09	1-4	I	ARR			LEWIS	938	3	D	T R	10 -1130	BURNETT
693.10	1-4	I	ARR				941	5	D	T R	10 -12	KIRCHER
693.21	1-4	I	ARR							ARR	1 HR	KIRCHER
693.22	1-4	I	ARR			REESE	942	3	D	T R	2 - 330	BURNETT
693.23	1-4	I	ARR			HANNA WELLL	946	3	D	T R	4 - 530	HACK
693.25	1-4	I	ARR			EBERHART	947	3	D	M	7 - 930P	NYSTRAND
693.26	1-4	I	ARR				948	3	D	W	7 - 930P	STAUB
693.27	1-4	I	ARR				949	2- 3 D	M	7 - 930P		LAUGHLIN
693.28	1-4	I	ARR			MUESSIG	951	3	D	T	7 - 930P	
693.29	1-4	I	ARR				953	3	D	T R	430- 6	STAUB
693.33	1-4	I	ARR			DOWLING	957	3	D	M	7 - 930P	HACK
693.34	1-4	I	ARR				958	3	D	M	430- 630	CONRAD
693.35	1-4	I	ARR			COON				ARR	1 HR	
693.36	1-4	I	ARR				960	4	S	W	1 - 4	LARREE
693.40	1-4	I	ARR			SUTTON	964	4	D	T	7 - 930P	NOVAK
693.41	1-4	I	ARR			KIRCHER				ARR	1 HR	
693.43	1-4	I	ARR			TYLER	968	3	D	T R	4 - 530	NOVAK

[illegible]





Education (Cont'd)

999.27	I	ARR
999.28	I	ARR
999.33	I	ARR
999.34	I	ARR
999.35	I	ARR
999.36	I	ARR
999.40	I	ARR
999.41	I	ARR
999.43	I	ARR
999.44	I	ARR
999.45	I	ARR
999.46	I	ARR
999.47	I	ARR
999.48	I	ARR
999.49	I	ARR

Electrical Engineering

No.	Crd't.	Sec.	Day	Time	Instructor
SUMMER QUARTER					
693	1-18	I		ARR	
694	1-18	D		ARR	
794	1-18	D		ARR	
880	1-18	I		ARR	
999		I		ARR	
SUMMER 1ST TERM					
631	4	L	MTW F	1 - 3	
693	1-18	I		ARR	
694	1-18	D		ARR	
794	1-18	D		ARR	
810	3	L	MTWRF	11	
880	1-18	I		ARR	
999		I		ARR	
SUMMER 2ND TERM					
632	4	L	MTW F	1 - 3	
693	1-18	I		ARR	
694	1-18	D		ARR	
720	3	L	M W F	10 -12	
721	3	L	M W F	8 -10	
732	4	L	MTW F	1 - 3	
794	1-18	D		ARR	
800	3	L	M W F	8 -10	
814	3	L	M W F	4 - 6	
880	1-18	I		ARR	
999		I		ARR	
AUTUMN QUARTER					
500	4	L	M W F	8	
		L	M W F	11	
		L	M W F	12	
		L	M W F	1	
		L	M W F	2	
		B	M	3 - 6	
		B	T	8 -11	
		B	T	12 - 3	
		B	T	3 - 6	
		B	W	3 - 6	
		B	R	12 - 3	
		B	R	3 - 6	
		B	S	9 -12	
501	4	L	M WRF	9	
		L	MTW F	11	
		L	M WRF	3	
		L	MTW F	4	
503	4	L	T R	5 - 7	
504	4	L	M WRF	8	
		L	MTW F	11	
		L	M WRF	3	
		L	MTW F	4	
507	2	B	M	1 - 5	
		B	T	8 -12	
		B	T	1 - 5	
		B	R	8 -12	
		B	R	1 - 5	
		B	S	8 -12	
510	4	L	MTW F	8	
		L	MTWRF	8	
		L	M WRF	12	
		L	MTW F	3	
512	4	L	M W	5 - 7	

517	2	B	T	8 -12	
520	4	L	M W F	9	
		L	M W F	10	
		L	M W F	12	
		B	M	3 - 6	
		B	T	12 - 3	
		B	R	9 -12	
		B	R	12 - 3	
		B	S	9 -12	
540	4	L	M W F	12	
		L	R	9 -12	
580	1	L	R	12	
581	5	W		ARR	
620	4	L	MTW F	9	
		L	MTW F	2	
		L	M WRF	4	
622	4	B	T R	4 - 6	
627	2	B	T	8 -12	
		B	T	1 - 5	
		B	R	8 -12	
		B	R	1 - 5	
		B	S	8 -12	
628	2	B	R	8 -12	
		B	S	8 -12	
631	4	L	MTW F	1	
632	4	L	M WRF	8	
		L	MTW F	1	
640	4	L	M W F	4	
		B	R	12 - 3	
		B	S	9 -12	
641	3	L	M W F	10	
		L	M W F	11	
		L	M W F	1	
		L	M W F	3	
650	4	L	M WRF	11	
		L	M WRF	1	
		L	MTW F	3	
657	2	B	T	8 -12	
		B	R	1 - 5	
		B	S	8 -12	
660	3	L	M W F	10	
		L	M W F	1	
		L	M W F	2	
693	1-18	I		ARR	
694	1-18	D		ARR	
700	3	L	M W F	8	
710	3	L	M W F	9	
715	3	L	M W F	2	
718	1	B	R	8 -11	
732	4	L	MTW F	11	
740	3	L	M W F	8	
794	1-18	D		ARR	
800	3	L	M W F	9 - 630	
		L	M W F	11	
801	3	L	M W F	5	
803	3	L	M W F	3	
804	3	L	M W F	2	
810	3	L	M W F	2	
		L	M W F	4	
815	3	L	M W F	4	
817	3	L	M W F	11	
820	3	L	M W F	9	
830	3	L	M W F	4	
834	3	L	M W F	10	
840	3	L	T R	5 - 630	
853	3	L	M W	5 - 630	
860	3	L	M W	5 - 630	
863	3	L	M W F	11	
865	3	L	M W F	1	
880	1-18	I		ARR	
881E	3	L		ARR	
881G	3	L		ARR	
881I	3	L		ARR	
881J	3	L		ARR	
881K	3	L		ARR	
895	1- 5 S		T	9 -11	
899	1- 5 S			ARR	
999		I		ARR	
WINTER QUARTER					
500	4	L	M W F	9	
		L	M W F	11	
		L	M W F	12	
		L	M W F	2	
		B	M	3 - 6	
		B	T	9 -12	
		B	T	12 - 3	
		B	T	3 - 6	
		B	W	3 - 6	
		B	R	8 -11	
		B	R	12 - 3	
		B	R	3 - 6	
		B	S	9 -12	
501	4	L	T R	5 - 7 P	
502	4	L	M WRF	8	
		L	MTW F	10	
		L	MTW F	12	



504	4	L	M WRF	4	
507	2	B	T R	5	- 7 P
		B	T	8	-12
		B	T	1	- 5
		B	R	1	- 5
508	2	B	T S	8	-12
		B	T	8	-12
		B	T	1	- 5
		B	R	1	- 5
		B	R	8	-12
		B	R	1	- 5
		B	S	8	-12
510	4	L	M W F	5	- 7 P
511	4	L	MTW F	8	
		L	M WRF	11	
		L	M WRF	3	
520	4	L	M W F	8	
		L	M W F	9	
		L	M W F	11	
		B	M	3	- 6
		B	T	9	-12
		B	T	3	- 6
		B	R	2	- 5
		B	S	9	-12
540	4	L	M W F	9	
		L	M W F	2	
		L	M	3	- 6
		B	T	12	- 3
		B	T	3	- 6
		B	S	9	-12
581	5	W	ARR		
620	4	L	M W	5	- 7
621	4	L	MTW F	9	
		L	M WRF	11	
		L	M WRF	3	
627	2	B	T	1	- 5
		B	S	8	-12
630	4	L	M WRF	11	
		L	MTW F	12	
		L	MTW F	1	
632	4	L	MTW F	2	
641	3	L	M W F	4	
642	3	L	M W F	8	
		L	M W F	12	
		L	M W F	4	
647	2	B	T	8	-12
		B	T	1	- 5
		B	R	8	-12
		B	R	1	- 5
		B	S	8	-12
650	4	L	MTW F	1	
657	2	B	R	1	- 5
		B	S	8	-12
660	3	L	M W F	10	
684	4	L	MTW F	10	
693	1-18	D	ARR		
694	1-18	D	ARR		
701	3	L	M W F	11	
		L	M W F	1	
707	2	B	S	8	-12
711	3	L	M W F	1	
713	3	L	M W F	2	
714	3	L	M W F	12	
717	1	B	S	9	-12
720	3	L	M W F	11	
727	2	B	S	8	-12
733	3	L	M W F	10	
741	3	L	ARR		
747	2	B	ARR		
751	3	L	M W F	9	
752	3	L	M W F	8	
757	2	B	T	8	-12
		B	R	1	- 5
760	3	L	M W F	1	
762	3	L	M W F	9	
770	3	L	M W	1	
		B	ARR		
794	1-18	D	ARR		
800	3	L	M W F	12	
801	3	L	M W F	2	
804	3	L	M W F	3	
805	3	L	M W F	2	
808	3	L	M W F	2	
810	3	L	M W F	4	
811	3	L	M W F	2	
818	3	L	M W F	11	
821	3	L	T R	3	- 415
822	3	L	M W F	4	
829	3	L	M W F	4	
831	3	L	M W F	4	
835	3	L	T R	9	-1030
837	3	L	M W F	10	
850	3	L	M W F	10	
		L	T R	515	- 630
854	3	L	M W	5	- 630
864	3	L	M W F	10	
880	1-18	D	ARR		

881C	3	L	ARR		
881E	3	L	ARR		
881F	3	L	ARR		
881K	3	L	ARR		
895	1- 5	S	ARR		
899	1- 5	S	ARR		
910	3	L	T R	3	- 430
999	3	L	ARR		
SPRING QUARTER					
500	4	L	M W F	12	
		B	M	3	- 6
		B	R	9	-12
502	4	L	T R	5	- 7
503	4	L	M WRF	8	
		L	MTW F	10	
		L	MTW F	1	
		L	M WRF	3	
508	2	B	T	1	- 5
		B	R	8	-12
		B	R	1	- 5
		B	S	8	-12
511	4	L	M W	5	- 7
512	4	L	MTW F	9	
		L	M WRF	11	
		L	MTW F	12	
		L	M WRF	4	
517	2	B	M	1	- 5
		B	T	8	-12
		B	T	1	- 5
		B	W	1	- 5
		B	R	8	-12
		B	R	1	- 5
		B	S	8	-12
520	4	L	M W F	9	
		L	M W F	10	
		L	M W F	12	
		L	M W F	1	
		B	M	3	- 6
		B	T	8	-11
		B	T	3	- 6
		B	W	3	- 6
		B	R	9	-12
		B	R	3	- 6
		B	S	9	-12
540	4	L	M W F	9	
		L	M W F	11	
		B	M	3	- 6
		B	T	3	- 6
		B	R	12	- 3
		B	R	3	- 6
581	5	W	ARR		
621	4	L	M W	5	- 7
622	4	L	M WRF	8	
		L	MTW F	11	
		L	MTW F	4	
628	2	B	T	8	-12
		B	T	1	- 5
		B	R	1	- 5
		B	S	8	-12
630	4	L	M WRF	4	
631	4	L	MTW F	10	
		L	MTW F	12	
		L	MTW F	1	
640	4	L	M W F	9	
		L	M W F	2	
		B	T	9	-12
		B	T	12	- 3
		B	W	9	-12
		B	R	9	-12
		B	R	12	- 3
		B	S	9	-12
642	3	L	T R	5	- 630
647	2	B	T	1	- 5
		B	S	8	-12
684	4	L	M W F	10	
		L	R	12	
		L	M W F	2	
		L	R	12	
693	1	D	ARR		
694	1	D	ARR		
702	3	L	M W F	8	
703	3	L	M W F	11	
708	2	B	R	1	- 5
712	3	L	M W F	3	
720	3	L	M W F	10	
721	3	L	M W F	2	
728	2	B	R	1	- 5
732	4	L	MTW F	12	
742	3	L	M W F	8	
746	2	B	ARR		
753	3	L	M W F	8	
754	3	L	M W F	10	
758	2	B	T	1	- 5
760	3	L	M W F	11	
		L	M W	5	- 630
761	3	L	M W F	3	

Electrical Engineering (Cont'd)

767	2	B	R	1	- 4	
		B		S	9	-12
771	3	L	M W	1		
		L		ARR		
794	1- 3	D		ARR		
802	3	L	M W F	10		
		L		1		
805	3	L	M W F	2		
806	3	L	M W F	2		
809	3	L	M W F	1		
812	3	L	M W F	2		
813	3	L	M W F	3		
816	3	L	M W F	4		
819	3	L	M W F	12		
820	3	L	M W F	1		
823	3	L	M W F	1		
832	3	L	M W F	4		
833	3	L	M W F	3		
836	3	L	M W F	11		
838	3	L	M W F	10		
851	3	L	M W F	10		
			T R	515- 630		
855	3	L	M W	5 - 630		
880				ARR		
881A	3	L		ARR		
881B	3	L		ARR		
881C	3	L		ARR		
881D	3	L		ARR		
881E	3	L		ARR		
881H	3	L		ARR		
895	1- 5	S		ARR		
899	1- 5	S		ARR		
999		I		ARR		

Engineering Graphics

No.	Crd't.	Sec.	Day	Time	Instructor
SUMMER QUARTER					
111	3	LB	M W F	10 -12	MARSH
		LB	M W F	1 - 3	MARSH
112	3	LB	T R	8 -11	MARSH
200	3	LB	MTWR	10	SMITH
		LB	MTWR	1	SMITH
AUTUMN QUARTER					
100	4	LB	MT RF	2 - 4	BALDWIN
111	3	LB	M W F	8 -10	
		LB	M W F	10 -12	
		LB	M W F	1 - 3	
		LB	M W F	3 - 5	
		LB	M W F	6 - 8 P	
		LB	T R	8 -11	
		LB	T R	1 - 4	
112	3	LB	M W F	8 -10	
		LB	M W F	10 -12	
		LB	M W F	3 - 5	
		LB	T R	1 - 4	
191	3	LB	M W F	10 -12	
200	3	LB	MTWR	9	
		LB	MTWR	10	
		LB	MTWR	1	
		LB	MTWR	2	
204	4	LB	MT RF	8 -10	KEARNS
237	5	LB	MTWRF	3 - 5	PARKINSON
WINTER QUARTER					
100	4	LB	MT RF	2 - 4	ROMEO
102	4	LB	MT RF	10 -12	ROMEO
111	3	LB	M W F	8 -10	
		LB	M W F	10 -12	
		LB	M W F	1 - 3	
		LB	M W F	3 - 5	
		LB	T R	8 -11	
		LB	T R	1 - 4	
112	3	LB	M W F	8 -10	
		LB	M W F	10 -12	
		LB	M W F	1 - 3	
		LB	M W F	3 - 5	
		LB	M W F	6 - 8 P	
		LB	T R	8 -11	
		LB	T R	1 - 4	

129	3	LB	M W F	10 -12	PARKINSON
192	3	LB	M W F	10 -12	
194	1- 5	LB	T R	1 - 4	REED
200	3	LB	MTWR	9	
		LB	MTWR	10	
		LB	MTWR	1	
		LB	MTWR	2	
206	4	LB	MT RF	8 -10	DENNING
SPRING QUARTER					
100	4	LB	MT RF	2 - 4	ROMEO
102	4	LB	MT RF	10 -12	ROMEO
111	3	LB	M W F	8 -10	
		LB	M W F	1 - 3	
		LB	T R	8 -11	
		LB	T R	1 - 4	
112	3	LB	M W F	8 -10	
		LB	M W F	10 -12	
		LB	M W F	1 - 3	
		LB	M W F	3 - 5	
194	1- 5	LB	T R	1 - 4	REED
200	3	LB	MTWR	9	
		LB	MTWR	10	
		LB	MTWR	1	
		LB	MTWR	2	
208	4	LB	MT RF	8 -10	BALDWIN
755	3	LB	T R	1 - 4	PARKINSON

Engineering Mechanics

No.	Crd't.	Sec.	Day	Time	Instructor
SUMMER QUARTER					
210	5	D	MTWRF	8	
420	5	D	MTWR	9	
			F	9	
510	5	D	MTWRF	10	
694	2- 5	S		ARR	
881	2- 5	S		ARR	
999		I		ARR	
SUMMER 1ST TERM					
999		I		ARR	
SUMMER 2ND TERM					
999		I		ARR	
AUTUMN QUARTER					
201	4	LB	MTWRF	11	
210	5	L	M W F	12	
		R	T R	9	
		R	T R	10	
		R	T R	12	
		R	T R	1	
		R	T R	2	
410	3	D	M W F	10	
		D	M W F	12	
		D	M W F	2	
420	5	D	MTWRF	8	
		D	MTWRF	9	
		D	MTWRF	10	
		D	MTWRF	11	
		D	MTWRF	1	
		O 1	MTWRF	8	
		B	T	8	
		B	T	9	
		B	T	10	
		B	T	11	
		B	T	12	
		B	T	1	
		B	T	2	
		B	T	3	
		B	R	8	
		B	R	9	
		B	R	10	
		B	R	11	
		B	R	12	
		B	R	1	
		B	R	2	
		B	R	3	
522	3	D	M W F	9	
624	3	D	M W	230- 345	
627	3	L	T R	12	
		B		ARR	
660	5	D	MTWRF	9	
694	2- 5	S		ARR	
731	3	D	T R	530- 645	



740	3	D	M W	530- 645
748	3	L B	M W	12
			ARR	
751	3	O	T R	4 - 515
835	3	O	M W	4 - 515
847	3	O	T R	230- 345
881	2- 5	S	ARR	
889	1	S	ARR	
999		I	ARR	

WINTER QUARTER

202	4	L B	MTWRF	11
210	5	L	M W F	8
			M W F	1
			T R	8
			T R	9
			T R	10
			T R	12
			T R	1
			T R	2
			T R	3
			T R	4
410	3	D	M W F	9
			M W F	2
420	5	D B	MTWRF	10
		D B	MTWRF	12
		D B	MTWRF	1
		B	R	8
		B	R	9
		B	R	10
		B	R	12
		B	R	1
		B	R	2
		B	R	3
510	5	D	MTWRF	9
		D	MTWRF	11
		D	MTWRF	2
		D	MTWRF	8
521	3	D	M W F	8
621	3	D	M W F	8
627	3	L	T R	12
		B	ARR	
694	2- 5	S	ARR	
700	3	D	M W F	10
711	3	D	T R	530- 645
741	3	D	M W	530- 645
748	3	L B	M W	12
			ARR	
754	3	D	M W	1 - 215
831	3	D	T R	4 - 515
843	3	D	T R	230- 345
855	3	D	M W	230- 345
864	3	D	M W F	1
881	2- 5	S	ARR	
889	1	S	W	4 - 530
999		I	ARR	

SPRING QUARTER

203	4	L B	MTWRF	11
210	5	L	M W F	8
			M W F	12
			T R	8
			T R	9
			T R	10
			T R	12
			T R	2
			T R	3
			T R	4
410	3	D	M W F	9
420	5	D	MTWRF	1
		B	R	10
		B	R	12
		B	R	2
		B	R	3
510	5	D	MTWRF	11
521	3	D	M W F	12
522	3	D	M W F	8
627	3	L	M W	8
		B	ARR	
694	2- 5	S	ARR	
732	3	D	M W F	3
748	3	L	T R	9
		B	ARR	
752	3	D	M W	530- 645
757	3	D	M W F	4 - 515
811	3	O	M W F	2
832	3	B	ARR	
833	3	D	T R	530- 645
840	3	D	T R	4 - 515
845	3	D	M W F	10
854	3	D	T R	230- 345
860	3	D	M W F	12
881	2- 5	S	ARR	
889	1	S	W	4 - 530
999		I	ARR	

Engineering Survey Courses

No.	Crd't.	Sec.	Day	Time	Instructor
AUTUMN QUARTER					
101	1	L	R	9	YARRINGTON
		L	R	11	
SPRING QUARTER					
102	1	L	T	2	YARRINGTON
		L	R	11	

English

No.	Crd't.	Sec.	Day	Time	Instructor
SUMMER QUARTER					
72	5	D	MTWRF	12	ESTRICH
73	3	O	M W F	12	
101	3	O	M W F	8	
		O	M W F	9	
		O	M W F	10	
		O	M W F	11	
		O	M W F	12	
		O	M W F	1	
		O	M W F	2	
		O	T R	8 - 930	
		O	T R	930-11	
		O	T R	11-1230	
102	3	D	M W F	9	LOGAN
		D	M W F	11	
		D	M W F	1	
103	3	D	M W F	8	
		O	M W F	10	
		O	M W F	12	
		O	M W F	2	
220	5	D	MTWRF	9	
		D	MTWRF	12	
240	5	D	MTWRF	10	
		D	MTWRF	1	
260	5	D	MTWRF	1	UTLEY
261	5	D	MTWRF	8	
		D	MTWRF	11	
		D	MTWRF	2	
290	5	D	MTWRF	8	
		D	MTWRF	10	
		D	MTWRF	12	
		D	MTWRF	2	
293	5	D	MTWRF	9	
294	5	D	MTWRF	11	
301	5	D	MTWRF	8	
		D	MTWRF	9	LOGAN
		D	MTWRF	10	
		D	MTWRF	11	
		D	MTWRF	12	
		D	MTWRF	1	
		D	MTWRF	2	
		D	MTWRF	9	
302	5	D	MTWRF	9	
513	5	D	MTWRF	3	
541	5	D	MTWRF	3	
551	5	D	MTWRF	9	
553	5	D	MTWRF	1	UTLEY
570	5	D	MTWRF	11	
615	5	D	MTWRF	9	
621	5	D	MTWRF	1	
624	5	D	MTWRF	10	
641	5	D	MTWRF	2	
649	5	D	MTWRF	11	
693	1- 5		ARR		
699	5	D	MTWRF	9	
		D	MTWRF	12	
		D	MTWRF	2	
815	5	S	T R	10 - 12	UTLEY
820	5	S	M W	2 - 4	
830	5	S	MTWRF	9	
840	5	S	MTWRF	1	
841	5	S	T R	12 - 2	
848	5	S	T R	2 - 4	
851	5	S	M W	10 - 12	
880	5	S	T R	4 - 6	
911	5	S	M W	4 - 6	
999		I	ARR		

**English (Cont'd)**

## SUMMER 1ST TERM

693	1- 5	ARR
999	I	ARR

## SUMMER 2ND TERM

693	1- 5 C	ARR
999	I	ARR

AUTUMN QUARTER

71		D	MTWRF	12	
72	5	D	MTWRF	12	
73	3	D	M W F F	12	
101	3	D	M W F F	8	
		D	M W F F	9	
	D10	D	M W F F	9	
		D	M W F F	9	
		D	M W F F	10	
		D	M W F F	11	
	D10	D	M W F F	11	
		D	M W F F	11	
		D	M W F F	12	
		D	M W F F	12	
	D10	D	M W F F	12	
		D	M W F F	12	
		D	M W F F	1	
		D	M W F F	2	
		D	M W F F	2	
	D10	D	M W F F	2	
		D	M W F F	3	
		D	M W F F	3	
	D10	D	M W F F	3	
		D	M W F F	3	
		D	M W F F	3	
		D	M W F F	4	
		D	M W F F	5	
		D	M W F F	6	
		D	M W F F	7	- 830P
		D	M W F F	4	- 530
		D	M W F F	530-	7
		D	T R	8 - 930	
		D	T R	930-11	
		D	T R	11 -1230	
		D	T R	1230- 2	
		D	T R	2 - 330	
		D	T R	4 - 530	
		D	T R	530- 7	
		D	T R	7 - 830P	

102	J	D	M	W	F	7	-	830
		D	M	W	F	8		
		D	M	W	F	9		
		D	M	W	F	10		
		D	M	W	F	11		
		D	M	W	F	12		
		D	M	W	F	1		
		D	M	W	F	2		
		D	M	W	F	3		
		D	M	W	F	4		
		D	M	W	F	6		
		D	T	R		8	-	930
		D	T	R		930-11		
		D	T	R		11	-1230	
		D	T	R		1230-2		
		D	T	R		2	-	330

103	D	T	2	- 330
	D	M	8	
	D	M	9	
	D	M	10	
	D	M	11	
	D	M	12	
	D	M	1	
	D	M	2	
	D	M	3	
	D	M	4	
	D	M	6	
	D	T	8	- 930
	D	T	930-11	
	D	T	11	-1230
	D	T	1230- 2	
	D	T	2	- 330

104	3	D	M	W	F	2	930-11
		D	M	W	F	8	
		D	M	W	F	9	
		D	M	W	F	10	
		D	M	W	F	11	
		D	M	W	F	1	
		D	M	W	F	2	
		D	M	W	F	3	
		D	T	R		930-11	

220	5	D	MTWR	9	930-11
		D	MTWRF	10	
		D	MTWRF	12	
		D	MTWRF	1	
		D	MTWRF	2	
240	5	D	MTWRF	9	
		D	MTWRF	11	
		D	MTWRF	2	
		D	MT R	7	- 830P

260	5	D	MYWRF	3	
261	5	D	MYWRF	8	
		O	MYWRF	9	
		O	MYWRF	11	
		D	MYWRF	12	
		O	MYWRF	2	
		O	MYWRF	4	
262	5	O	MYWRF	3	
265	5	D	MYWRF	1	
		D	MY R	7	- 830P
280	5	D	MYWRF	10	
290	5	D	MYWRF	8	

290	5	D	MTWRF	8
		D	MTWRF	10
		D	MTWRF	11
		D	MTWRF	12
		D	MTWRF	1
		D	MTWRF	3
293	5	D	MTWRF	8
		D	MTWRF	10
		D	MTWRF	1

		D	MTWRF	1
		D	MTWRF	2
294	5	D	MTWRF	9
		D	MTWRF	11
		D	MTWRF	3
		D	MTWRF	4
296	5	D	MTWRF	11
301	5	D	MTWRF	8

301	5	0	MTWRF	8
		0	MTWRF	9
		0	MTWRF	10
		0	MTWRF	11
		0	MTWRF	12
		0	MTWRF	1
		0	MTWRF	2
		0	MTWRF	3
		0	MTWRF	4

		0	MTWRF	4
302	5	0	MTWRF	8
		0	MTWRF	12
		0	MTWRF	3
305	3	0	M W	11

I	ARR	1	HR
O	T R	9	
I		ARR	1
O	T R	9	HR
I		ARR	1
O	T R	10	HR
I		ARR	1
O	T R	11	HR
I		ARR	1
O	T R	11	HR
I		ARR	1

520	5	D	MTWRF	ARR	1
522	5	D	MTWRF	11	3
535	5	D	MTWRF	11	3
540	5	D	MTWRF	9	
552	5	D	MTWRF	1	
553	5	D	MTWRF	2	
570	5	D	MTWRF	10	
624	5	D	MTWRF	1	
642	5	D	MTWRF	2	
643	5	D	MTWRF	10	
670	5	D	MTWRF	9	
671	5	D	MTWRF	11	
693	1-5	C		ARR	
699	5	D	MTWRF	12	
		D	MTWRF	3	

783	3-5	D	MTWTF	S
810	5	S	M W	1 - 3
814	5	S	M W	10 -12
820	5	S	M W	3 - 5
821	5	S	T R	1 - 3
830	5	S	T R	11 - 1
833	5	S	M W	3 - 5
842	5	S	T R	1 - 3
847	5	S	M W	11 - 1
852	5	S	M W	1 - 3
872	3	O	M W F	9
880	5	S	T R	11 - 1
940	5	S	MTWTF	9
980	5	S	MTWTF	10
999	1			ARR

## WINTER QUARTER

71	5	0	M T W R F	12
72	5	0	M T W R F	12
73	3	0	M W F F	12
101	3	0	M W F F	8
		0	M W F F	9
		0	M W F F	10
		0	M W F F	11
		0	M W F F	12
		0	M W F F	1
		0	M W F F	2
		0	M W F F	3
		0	M W F F	4
		0	M W F F	5
		0	M W F	4



		D	T R	8 - 930
		D	T R	930-11
		D	T R	11 -1230
		D	T R	1230- 2
		D	T R	2 - 330
		D	T R	4 - 530
102	3	D	M W F	8
		D	M W F	9
		D10	M W F	10
		D	M W F	10
		D	M W F	11
		D10	M W F	12
		D	M W F	12
		D10	M W F	12
		D	M W F	1
		D10	M W F	2
		D	M W F	2
		D10	M W F	3
		D	M W F	3
		D10	M W F	3
		D	M W F	3
		D	M W F	4
		D	M W F	5
		D	M W F	6
		D	M W	4 - 530
		D	M W	530- 7
		D	T R	8 - 930
		D	T R	930-11
		D	T R	11 -1230
		D	T R	1230- 2
		D	T R	2 - 330
		D	T R	4 - 530
		D	T R	530- 7
103	3	D	M W F	8
		D	M W F	9
		D	M W F	10
		D	M W F	11
		D	M W F	12
		D	M W F	1
		D	M W F	2
		D	M W F	3
		D	M W F	4
		D	M W F	6
		D	T R	8 - 930
		D	T R	930-11
		D	T R	11 -1230
		D	T R	1230- 2
		D	T R	2 - 330
105	3	D	M W F	8
		D	M W F	9
		D	M W F	10
		D	M W F	11
		D	M W F	1
		D	M W F	2
		D	M W F	3
		D	T R	930-11
195	3	D	M W F	12
220	5	D	MTWRF	9
		D	MTWRF	11
		D	MTWRF	12
		D	MTWRF	2
		D	MTWRF	4
240	5	D	MTWRF	9
		D	MTWRF	11
		D	MTWRF	2
260	5	D	MTWRF	10
		D	MTWRF	1
261	5	D	MTWRF	8
		D	MTWRF	9
		D	MTWRF	11
		D	MTWRF	12
		D	MTWRF	1
		D	MTWRF	3
		D	MTWRF	4
262	5	D	MTWRF	2
265	5	D	MTWRF	2
290	5	D	MTWRF	8
		D	MTWRF	10
		D	MTWRF	12
		D	MTWRF	2
		D	MTWRF	3
		D	MT R	7 - 830P
293	5	D	MTWRF	10
		D	MTWRF	11
		D	MTWRF	1
		D	MTWRF	3
294	5	D	MTWRF	8
		D	MTWRF	10
		D	MTWRF	1
		D	MTWRF	3
299	5	D	MTWRF	11
301	5	D	MTWRF	8
		D	MTWRF	9
		D	MTWRF	10
		D	MTWRF	11
		D	MTWRF	12

		D	MTWRF	1
		D	MTWRF	2
		D	MTWRF	3
		D	MTWRF	4
302	5	D	MTWRF	9
		D	MTWRF	12
		D	MTWRF	3
305	3	D	M W	11
		I	ARR	1 HR
		D	T R	9
		I	T R	ARR 1 HR
		D	T R	9
		I	T R	ARR 1 HR
		D	T R	10
		I	T R	ARR 1 HR
		D	T R	11
		I	T R	ARR 1 HR
		D	T R	11
		I	ARR	1 HR
513	5	D	MTWRF	10
520	5	D	MTWRF	2
531	5	D	MTWRF	1
541	5	D	MTWRF	9
551	5	D	MTWRF	3
552	5	D	MTWRF	11
553	5	D	MTWRF	12
570	5	D	MTWRF	2
615	5	D	MTWRF	11
634	5	D	MTWRF	10
665	5	D	MTWRF	3
672	5	D	MTWRF	2
680	5	D	MTWRF	1
693	1- 5	C	ARR	
699	5	D	MTWRF	9
		D	MTWRF	12
		D	MTWRF	3
		D	M W F	2
777	3	D	ARR	
783	3- 5	C 1	ARR	
812	5	S	MTWRF	11
815	5	S	M W	9 -11
822	5	S	M W	11 - 1
831	5	S	M W	3 - 5
835	5	S	M W	1 - 3
841	5	S	T R	9 -11
848	5	S	T R	1 - 3
851	5	S	T R	3 - 5
876	5	S	T R	9 -11
877	5	S	T R	3 - 5
880	5	S	M W	9 -11
912	5	S	M W	3 - 5
922	5	S	T R	11 - 1
941	5	S	MTWRF	9
950	5	S	M W	1 - 3
982	5	S	T R	1 - 3
999		I	ARR	
SPRING QUARTER				
71	5	D	MTWRF	12
72	5	D	MTWRF	12
73	3	D	M W F	12
101	3	D	M W F	8
		D	M W F	9
		D	M W F	10
		D	M W F	11
		D	M W F	12
		D	M W F	1
		D	M W F	2
		D	M W F	3
102	3	D	M W F	6
		D	M W F	8
		D	M W F	9
		D	M W F	10
101	3	D	M W F	10
102	3	D	M W F	11
		D	M W F	12
		D	M W F	1
		D	M W F	1
101	3	D	M W F	1
102	3	D	M W F	2
		D	M W F	3
		D	M W F	4
		D	M W F	6
		D	T R	8 - 930
		D	T R	930-11
		D	T R	11 -1230
		D	T R	1230- 2
		D	T R	2 - 330
101	3	D	T R	2 - 330
103	3	D	M W F	8
		D	M W F	9
		D	M W F	10
		D	M W F	11
		D	M W F	12
		D	M W F	1
		D	M W F	2
		D	M W F	3
		D	M W F	4
		D	M W F	5

## English (Cont'd)

		D	M W F	6	
		D	M W	4 - 530	
		D	M W	530- 7	
		D	T R	8 - 930	
		D	T R	930-11	
		D	T R	11 -1230	
		D	T R	1230- 2	
		D	T R	2 - 330	
		D	T R	4 - 530	
		D	T R	530- 7	
195	3	D	M W F	3	
220	5	D	MTWRF	8	
		D	MTWRF	10	
		D	MTWRF	12	
		D	MTWRF	2	
		D	MTWRF	3	
240	5	D	MTWRF	9	
		D	MTWRF	11	
		D	MTWRF	1	
		D	MTWRF	3	
260	5	D	MTWRF	9	
		D	MTWRF	1	
261	5	D	MTWRF	8	
		D	MTWRF	10	
		D	MTWRF	11	
		D	MTWRF	12	
		D	MTWRF	2	
		D	MTWRF	4	
		D	MT R	7 - 830P	
262	5	D	MTWRF	10	
266	5	D	MTWRF	3	
280	5	D	MTWRF	10	
290	5	D	MTWRF	8	
		D	MTWRF	9	
		D	MTWRF	11	
		D	MTWRF	12	
		D	MTWRF	1	
		D	MTWRF	3	
293	5	D	MTWRF	8	
		D	MTWRF	10	
		D	MTWRF	12	
		D	MTWRF	2	
294	5	D	MTWRF	9	
		D	MTWRF	11	
		D	MTWRF	1	
		D	MTWRF	2	
		D	MTWRF	4	
299	5	D	MTWRF	2	
301	5	D	MTWRF	8	
		D	MTWRF	9	
		D	MTWRF	10	
		D	MTWRF	11	
		D	MTWRF	12	
		D	MTWRF	1	
		D	MTWRF	2	
		D	MTWRF	3	
		D	MTWRF	4	
302	5	D	MTWRF	8	
		D	MTWRF	12	
		D	MTWRF	3	
305	3	D	M W	11	
		I	ARR	1 HR	
		I	T R	9	
		I	ARR	1 HR	
		I	T R	9	
		I	ARR	1 HR	
		I	T R	10	
		I	ARR	1 HR	
		I	T R	11	
		I	ARR	1 HR	
		I	T R	11	
		I	ARR	1 HR	
520	5	D	MTWRF	10	
522	5	D	MTWRF	3	
535	5	D	MTWRF	12	
540	5	D	MTWRF	11	
552	5	D	MTWRF	9	
553	5	D	MTWRF	2	
570	5	D	MTWRF	11	
621	5	D	MTWRF	10	
641	5	D	MTWRF	1	
642	5	D	MTWRF	2	
643	5	D	MTWRF	11	
649	5	D	MTWRF	9	
676	5	D	MTWRF	3	
693	1- 5		ARR		
699	5	D	MTWRF	9	
		D	MTWRF	11	
		D	MTWRF	12	
		D	MTWRF	1	
		D	MTWRF	3	
778	3	D	M W F	2	
783	3- 5 C 1		ARR		

813	5	S	MTWRF	9	
823	5	S	T R	1 - 3	
830	5	S	M W	2 - 4	
840	5	S	MTWRF	1	
847	5	S	T R	9 -11	
852	5	S	M W	11 - 1	
865	5	S	M W	10 -12	
878	5	S	T R	2 - 4	
880	5	S	M W	1 - 3	
			T R	3 - 5	
913	5	S	M W	3 - 5	
923	5	S	T R	11 - 1	
935	5	S	T R	9 -11	
951	5	S	M W	9 -11	
999		I	ARR		

## Entomology

No.	Crd't.	Sec.	Day	Time	Instructor
SUMMER QUARTER					
500	5	L	M W F	10	FISK
		B	T R	10 -12	
693	2-10	I		ARR	FISK
694	2- 5	I		ARR	
831	5	L	T R	2	
		B	M W	1 - 4	
999		I		ARR	
SUMMER 1ST TERM					
611	4	B10	M W F	8 - 4	WEAVER JOHNSTON
670	4	BR	MTWRF	9 - 9 P	
693	2- 8	I		ARR	WHARTON BAKER
694	2- 5	D		ARR	
870	4	BR	MTWRF	9 - 9 P	
871	4	BR	MTWRF	9 - 9 P	
999		I		ARR	
SUMMER 2ND TERM					
693	2- 8	I		ARR	
694	2- 5	D		ARR	
999		I		ARR	
AUTUMN QUARTER					
200	5	L	M W F	10	
		B	T R	8 -10	
		B	T R	10 -12	FISK
431	5	L	M W F	1	
		B	T R	1 - 3	HOLDSWORTH
460	5	LB	MTWRF	3	
		LB	MTWRF	4	BORROR
621	5	L	T R	3	
		B	M W F	3 - 5	DAVIDSON
660	5	L	M W F	1	
		B	T R	1 - 3	JOHNSTON
670	4	LB	T R	9 -12	
693	2-10	I		ARR	DAMBACH
694	2- 5	D		ARR	
897	1	S		ARR	
999		I		ARR	
WINTER QUARTER					
200	5	L	M W F	10	VALENTINE
		B	T R	8 -10	
		B	T R	10 -12	DAVIDSON
460	5	LB	MTWRF	1	
		LB	MTWRF	2	COLLINS
662	5	L	M W F	10	
		B	T R	10 -12	
693	2- 5	I		ARR	
694	2- 5	D		ARR	BORROR
751	5	L	T R	1	
		B	M W F	1 - 3	FISK
831	5	L	M W F	2	
		B	T R	2 - 4	BRIGGS
841	5	L	MTWRF	9	
		B	F	8 -10	DAMBACH
897	1	S		ARR	
999		I		ARR	
SPRING QUARTER					
200	5	L	M W F	10	VALENTINE
		B	T R	8 -10	
		B	T R	10 -12	STEPHEN
361	5	L	M W F	3	
		B	T R	3 - 5	



460	5	LB	MTWRF	1	HOLDSWORTH
		LB	MTWRF	2	
561	3	D	M W F	11	DAVIDSON
602	3	D	M W F	9	ROTHENBUHL
661	5	L	M W F	8	VENARD
		B	T R	8	
		B	T R	10	
693	2-5	I	ARR	-10	
694	2-5	D	ARR	-12	
821	5	L	T R	10	FISK
		B	M W F	10	
871	4	LB	T R	9	JOHNSTON
896	1	S	ARR	-12	
897	1	S	ARR		
999		I	ARR		

993.01	1-5	I	ARR
993.03	1-5	I	ARR
993.05	1-5	I	ARR
993.06	1-5	I	ARR
993.10	1-5	I	ARR
993.11	1-5	I	ARR
999		I	ARR

SUMMER 2ND TERM

693.01	2-5	I	ARR
693.03	2-5	I	ARR
693.05	2-5	I	ARR
693.06	2-5	I	ARR
693.09	2-5	I	ARR
693.10	2-5	I	ARR
693.11	2-5	I	ARR
940	3-5	I	ARR
970	3-5	I	ARR
971	3-5	I	ARR
980	3-5	I	ARR
993.01	1-5	I	ARR
993.03	1-5	I	ARR
993.05	1-5	I	ARR
993.06	1-5	I	ARR
993.10	1-5	I	ARR
993.11	1-5	I	ARR
999		I	ARR

AUTUMN QUARTER

110	3	L	M W F	9	
		L	M W F	11	
111	3	L	M W F	8	
		L	M W F	10	
		L	M W F	12	
		L	M W F	2	
		L	M W F	4	
		L	M W	7	- 830P
		B	M W F	3	- 5
140	3	B	ARR	1 HR	
170	5	L	R	4	
		B	MTWRF	8	-10
		B	MTWRF	10	-12
		B	MTWRF	1	- 3
		B	MTWRF	3	- 5
		B	MTWR	7	- 930P
171	5	B	MTWRF	1	- 3
		B	MTWRF	3	- 5
		B	MTWR	7	- 930P
180	5	B	MTWRF	8	-11
		B	MTWRF	11	- 2
		B	MTWRF	2	- 5
190	3	B	T R	10	-12
		B	W	11	
		B	T R	1	- 3
		B	W	2	
		B	MTWRF	3	
		B	MTWRF	4	
		B	T R	7	- 930P
210	3	L	M W F	9	HERZOG
		L	M W F	1	RUBRIGHT
211	3	L	M W F	10	MEALY
		L	M W F	2	MEALY
212	3	L	M W F	11	SANDBERG
		L	M W F	3	
213	3	L	M W F	3	
240	5	B 2	MTWRF	10	-12
244	5	B	MTWRF	8	-10
		B	MTWRF	ARR	5 HRS
		B	MTWRF	1	- 3
		B	MTWRF	ARR	5 HRS
245	5	B	MTWRF	10	-12
		B	MTWRF	ARR	5 HRS
246	5	B	MTWRF	10	-12
		B	MTWRF	ARR	5 HRS
250	3	B	M W F	10	-12
251	5	B 2	MTWRF	8	-11
		B 2	MTWRF	ARR	5 HRS
		B 2	MTWRF	11	- 2
		B 2	MTWRF	ARR	5 HRS
		B 2	MTWRF	2	- 5
		B	MTWRF	ARR	5 HRS
258	3	B	M W F	1	- 3
		T		1	
272	5	B	MTWRF	9	-12
		B	MTWRF	1	- 4
273	5	B	MTWRF	2	- 5
276	5	B	MTWRF	8	-10
280	5	B	MTWRF	10	-12
282	5	B	MTWRF	9	-12
290	5	B	MTWRF	8	-10
		B	MTWRF	10	-12
		B	MTWRF	1	- 3
		B	MTWRF	3	- 5
295	3	B	M W F	8	-10
297	3	B	M W F	8	-10
401	5	B	MTWRF	1	- 4
441	5	L	MTWRF	11	- 1

MITCHELL  
FETZER

Fine Arts

No.	Crd't. Sec.	Day	Time	Instructor
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SUMMER QUARTER

110	3	L	M W F	8	
111	3	L	M W F	9	KEYES
140	3	L	M W F	1	- 3
		B	ARR	1 HR	BOGATAY
		B	M W F	3	- 5
		B	ARR	1 HR	
180	5	B	MTWRF	8	-11
190	3	B	T R	8	-10
		B	W	9	
		B	M F	8	-10
		B	W	8	
		B	MTWRF	11	
		B	MTWRF	1	
211	3	L	M W F	1	
212	3	L	M W F	2	
244	5	L	MTWRF	10	-12
		B	ARR	5 HRS	BOGATAY
		B	MTWRF	1	- 3
		B	ARR	5 HRS	
272	5	B	MTWRF	2	- 5
273	5	B	MTWRF	8	-11
274	5	B	MTWRF	2	- 5
290	5	B	MTWRF	8	-10
		B	MTWRF	10	-12
		B	MTWRF	1	- 3
		B	MTWRF	3	- 5
500	3	B	M W F	8	-10
		B	M W F	10	-12
		B	M W F	1	- 3
		B	M W F	3	- 5
570	5	B	MTWRF	2	- 5
571	5	B	MTWRF	2	- 5
573	5	B	MTWRF	8	-11
635	5	L	MTWRF	11	
636	5	L	MTWRF	10	
693.01	2-5	I	ARR		
693.03	2-5	I	MTWRF	10	-12
		I	MTWRF	1	- 3
693.05	2-5	I	ARR		
693.06	2-5	I	ARR		
693.10	2-5	I	ARR		
693.11	2-5	I	ARR		
911	3-5	I	ARR		TEMPLETON
940	3-5	I	ARR		
970	3-5	I	ARR		
971	3-5	I	ARR		
980	3-5	I	ARR		
993.01	1-5	I	ARR		
993.03	1-5	I	ARR		
993.05	1-5	I	ARR		
993.06	1-5	I	ARR		
993.10	1-5	I	ARR		EFLAND
993.11	1-5	I	ARR		
999		I	ARR		

SUMMER 1ST TERM

693.01	2-5	I	ARR
693.03	2-5	I	ARR
693.05	2-5	I	ARR
693.06	2-5	I	ARR
693.10	2-5	I	ARR
693.11	2-5	I	ARR
940	3-5	I	ARR
970	3-5	I	ARR
971	3-5	I	ARR
980	3-5	I	ARR

### Fine Arts (Cont'd)

450	5	B	MTWRF	8	-10		210	3	L	M W F	8			
		B	MTWRF	1	- 3	WOOD			L	M W F	1			
460	5	B	MTWRF	10	-12		211	3	L	M W F	9			
		B	MTWRF	3	- 5	WOOD			L	M W F	2			
468	5	B	MTWRF	1	- 3	BAUGHMAN	212	3	L	M W F	10			
469	3	B	MTW	1	- 3				L	M W F	3			
500	3	B	M W F	8	-10		240	5	B	2	MTWRF	10	-12	
		B	M W F	10	-12	EFLAND	244	5	B		MTWRF	8	-10	
		B	M W F	3	- 5	TEMPLETON					ARR	5	HRS	
		B	M W F	4	- 6	TEMPLETON			B		MTWRF	3	- 5	
515	5	L	MTWRF	1		COPE	245	5	B		MTWRF	ARR	5	HRS
550	3	B	TWR	9		KRUMM					MTWRF	10	-12	MEDEZ
570	5	B	MTWRF	9	-12	WYNN	246	5	B		MTWRF	5	HR	ARR
573	5	B	MTWRF	2	- 5	HEBNER					MTWRF	10	-12	MEDEZ
582	5	B	MTWRF	1	- 4	HASSELLE	252	5	B		MTWRF	5	HR	ARR
603	4	L	M	10	-12				B		MTWRF	8	-11	YETZ
		O	W F	10	-12				B		MTWRF	11	- 2	
		I	ARR						B		MTWRF	2	- 5	
616	3	L	M W F	1			258	3	B		M W F	1	- 3	
620	5	L	MTWRF	3		RUBRIGHT				T	1			
624	3	L	MTWRF	11		LUDDEN	272	5	B		MTWRF	8	-11	KING
628	3	L	M W F	10		COPE	273	5	B		MTWRF	2	- 5	CHAFETZ
631	5	L	MTWRF	12			276	5	B		MTWRF	8	-11	HEWETT
636	5	L	MTWRF	9		SANDBERG			B		MTWRF	8	-10	PETERSEN
640	5	B	MTWRF	3	- 5	MEDEZ	280	5	B		MTWRF	10	-12	PETERSEN
			ARR	5	HRS				B		MTWRF	8	-10	HATCHETT
650	5	B	M F	9	-12	KITTS	282	5	B		MTWRF	10	-12	HATCHETT
			TWR	10	-12		290	5	B		MTWRF	9	-12	GREAVES
660	5	B	MTWRF	1	- 3	BUTTER			B		MTWRF	8	-10	
665	5	B	MTWRF	10	-12	CLIPSON			B		MTWRF	10	-12	
670	5	B	MTWRF	1	- 4	CSURI			B		MTWRF	1	- 3	
678	5	B	MTWRF	2	- 5	PETERSON	296	3	B		M W F	3	- 5	
681	5	B	MTWRF	9	-12	BLACK	401	5	B		MTWRF	8	-11	MITCHELL
693.01	2	- 5	ARR				442	5	B		MTWRF	8	-10	FETZER
693.02	2	- 5	ARR			CLIPSON	451	5	B		MTWRF	10	-12	
693.03	2	- 5	ARR				461	5	B		MTWRF	8	-10	CLIPSON
693.04	2	- 5	ARR			BUTTER			B		MTWRF	1	- 3	
693.05	2	- 5	ARR			BARKAN			B		MTWRF	10	-12	
693.06	2	- 5	ARR			CHAFETZ	468	5	B		MTWRF	3	- 5	CLIPSON
693.07	2	- 5	ARR			BAUGHMAN	469	3	B		MTW	1	- 3	BAUGHMAN
693.08	2	- 5	ARR				500	3	B		M W F	8	-10	
693.09	2	- 5	ARR						B		M W F	10	-12	
693.10	2	- 5	W	730-	930P	HALL			B		M W F	11	- 1	
693.11	2	- 5	ARR						B		M W F	1	- 3	
715	3	S	M W F	2					B		M W F	3	- 5	
737	3	S	T	3	- 5		520	5	L		MTWRF	11		
840	3	- 5	ARR				551	3	L		TWR	9		KRUMM
875	3	- 5	ARR				570	5	B		MTWRF	8	-11	HEBNER
881	3	- 5	ARR				573	5	B		MTWRF	8	-11	HALL
911	3	- 5	ARR				580	5	B		MTWRF	1	- 4	BLACK
930	2	- 5	W	3	- 5		617	3	L		M W F	1		
940	3	- 5	ARR				618	5	L		MTWRF	11		
950	3	- 5	ARR			ZIMMER	621	5	L		MTWRF	2		RUBRIGHT
970	3	- 5	ARR				625	5	L		MTWRF	11		LUDDEN
971	3	- 5	ARR				629	5	L		MTWRF	1		COPE
980	3	- 5	ARR				634	5	L		MTWRF	9		KUNIN
993.01	1	- 5	ARR				635	5	L		MTWRF	10		KEYES
993.03	1	- 5	ARR				638	3	L		M W F	3		BAIGELL
993.04	1	- 5	ARR				641	5	B		MTWRF	1	- 4	BOGATAY
993.05	1	- 5	ARR				651	5	B		M F	9	-12	WOOD
993.06	1	- 5	ARR							TWR	10	-12	WOOD	
993.10	1	- 5	ARR				661	5	B		MTWRF	1	- 3	BUTTER
993.11	1	- 5	ARR				666	5	B		MTWRF	10	-12	ZIMMER
999	1		ARR				677	5	B		MTWRF	2	- 5	R GATRELL
WINTER QUARTER							681	5	B		MTWRF	9	-12	GREAVES
							693.01	2	- 5	I	ARR			
110	3	L	M W F	9			693.02	2	- 5	I	MTWRF	8	-10	ZIMMER
		L	M W F	11			693.03	2	- 5	I	ARR			
		L	M W	7	- 830		693.04	2	- 5	I	MTWRF	3	- 5	
111	3	L	M W F	8			693.05	2	- 5	I	ARR			BUTTER
		L	M W F	10			693.06	2	- 5	I	ARR			MCWHINNIE
		L	M W F	12			693.07	2	- 5	I	ARR			
		L	M W F	2			693.08	2	- 5	I	ARR			BAUGHMAN
		L	M W F	4			693.09	2	- 5	I	ARR			
140	3	B	M W F	1	- 3	FETZER	693.10	2	- 5	I	ARR			CSURI
			1	HR	ARR		693.11	2	- 5	I	ARR			
171	5	B	MTWRF	8	-10		718	5	L		T R	3	- 5	COPE
		B	MTWRF	10	-12		839	3	S		W	3	- 5	LUDDEN
		B	MTWRF	1	- 3		845	3	- 5	I	ARR			
		B	MTWRF	3	- 5		846	3	- 5	I	ARR			
175	5	B	MTWRF	10	-12		847	3	- 5	S	ARR			
		B	MTWRF	1	- 3		874	3	- 5	I	ARR			
		B	MTWRF	3	- 5		876	3	- 5	I	ARR			
180	5	B	MTWRF	8	-11	HASSELLE	879	2	S		ARR			
		B	MTWRF	11	- 2		885	3	- 5	B	ARR			
		B	MTWRF	2	- 5	FREEMAN	911	3	- 5	I	ARR			
		B	MTWRF	6	- 9	P	932	2	- 5	S	M	3	- 5	PATTON
190	3	B	T R	10	-12		940	3	- 5	I	ARR			
			W	11			950	3	- 5	I	ARR			
		B	T R	1	- 3		970	3	- 5	I	ARR			
			W	2			971	3	- 5	I	ARR			
		B	M F	1	- 3		980	3	- 5	I	ARR			
			W	1			993.01	1	- 5	I	ARR			



993.03	1- 5 I	ARR	
993.04	1- 5 I	ARR	
993.05	1- 5 I	ARR	ECKER
993.06	1- 5 I	ARR	
993.10	1- 5 I	ARR	
993.11	1- 5 I	ARR	
999	I	ARR	
SPRING QUARTER			
110	3 L	M W F 9	
		M W F 11	
111	3 L	M W F 8	
		M W F 10	
		M W F 3	
		M W 7 - 830P	
140	3 B	M W F 1 - 3	FETZER
		ARR 1 HR	
170	5 B	MTWRF 10 -12	
		MTWRF 1 - 3	
		MTWRF 3 - 5	
175	5 B	MTWRF 8 -10	
		MTWRF 10 -12	
		MTWRF 1 - 3	
		MTWRF 3 - 5	
180	5 B	MTWRF 8 -11	HASSELLE
		MTWRF 11 - 2	HATCHETT
		MTWRF 2 - 5	BLACK
		MTWRF 6 - 9 P	
190	3 B	T R 8 -10	
		W 9	
		M F 8 -10	
		W 8	
		T R 10 -12	
		W 11	
		M F 10 -12	
		W 10	
		T R 1 - 3	
		W 2	
		M F 1 - 3	
		W 1	
200	3 L	M W F 4	CHAPMAN
		O W F 4	CHAPMAN
210	3 L	M W F 11	
		M W F 2	
211	3 L	M W F 10	
		M W F 4	
212	3 L	M W F 9	
		M W F 1	
213	3 L	M W F 9	
240	5 B 2	MTWRF 10 -12	
244	5 B	MTWRF 8 -10	
		ARR 5 HRS	
		MTWRF 3 - 5	
		ARR 5 HRS	
245	5 B	MTWRF 10 -12	MENDEZ
		ARR 5 HRS	
246	5 B	MTWRF 10 -12	MENDEZ
		ARR 5 HRS	
253	5 B	MTWRF 10 - 1	TETZ
		MTWRF 2 - 5	
258	3 B	M W F 8 -10	
		T 8	
		M W F 8 -10	
		T 8	
260	3 L	M W F 1	
270	3 B	M W 1 - 4	WYNNE
272	5 B	MTWRF 1 - 4	WYNNE
273	5 B	MTWRF 8 -11	CSURI
274	5 B	MTWRF 9 -12	
276	5 B	MTWRF 8 -10	PETERSEN
		MTWRF 10 -12	PETERSEN
281	5 B	MTWRF 2 - 5	GREAVES
290	5 B	MTWRF 8 -10	
		MTWRF 10 -12	
		MTWRF 1 - 3	
		MTWRF 3 - 5	
297	3 B	M W F 8 -10	
402	4 L	T 10 -12	MCWHINNIE
		S 9 -12	MCWHINNIE
		O R 10 -12	
443	5 B	MTWRF 10 -12	FETZER
452	5 B	MTWRF 8 -10	
		MTWRF 1 - 3	WOOD
462	5 B	MTWRF 10 -12	
		MTWRF 3 - 5	WOOD
465	5 B	MTWRF 10 -12	
468	5 B	MTWRF 1 - 3	BAUGHMAN
469	3 B	MTW 1 - 3	BAUGHMAN
500	3 B	M W F 8 -10	TEMPLETON
		M W F 10 -12	
		M W F 1 - 3	
		M W F 3 - 5	
530	3 L	M W F 2	BAIGELL
552	3 L	M W F 4	KRUMH
570	5 B	MTWRF 1 - 4	SHERMANN

571	5 B	MTWRF 9 -12	KING
572	5 B	MTWRF 9 -12	KING
573	5 B	MTWRF 8 -11	HEWETT
581	5 B	MTWRF 9 -12	FREEMAN
619	3 L	M W F 1	
622	5 L	MTWRF 10	RUBRIGHT
627	5 L	MTWRF 11	MEALY
630	5 L	MTWRF 1	COPE
636	5 L	MTWRF 3	SANDBERG
637	5 L	MTWRF 10	PATTON
642	5 L	MTWRF 10 -12	FRILEY
		ARR 5 HRS	
652	5 B	MTWRF 1 - 3	WALLSCHLAG
662	5 B	MTWRF 9 -12	BUTTER
667	5 B	MTWRF 10 -12	CLIPSON
693.01	2- 5 I	ARR	
693.02	2- 5 I	MTWRF 8 -10	CLIPSON
693.03	2- 5 I	ARR	
693.04	2- 5 I	ARR	BUTTER
693.05	2- 5 I	ARR	EFLAND
693.06	2- 5 I	ARR	
693.07	2- 5 I	ARR	BAUGHMAN
693.08	2- 5 I	ARR	
693.09	2- 5 I	ARR	
693.10	2- 5 I	MTWRF 2 - 5	HALL
		W 730-10 P	CSURI
693.11	2- 5 I	ARR	
724	3 S	M 3 - 5	HERZOG
804	3- 5 I	ARR	
841	3- 5 I	ARR	
846	3- 5 I	ARR	
848	3- 5 I	ARR	
870	3- 5 I	ARR	
887	3- 5 I	ARR	
911	3- 5 I	ARR	
917	2- 5 S	T 3 - 5	
920	2- 5 S	W 3 - 5	COPE
939	2- 5 S	R 3 - 5	
940	3- 5 I	ARR	
950	3- 5 I	ARR	KITTS
970	3- 5 I	ARR	
971	3- 5 I	ARR	
980	3- 5 I	ARR	
993.01	1- 5 I	ARR	
993.03	1- 5 I	ARR	
993.04	1- 5 I	ARR	
993.05	1- 5 I	ARR	CHAPMAN
993.06	1- 5 I	ARR	
993.10	1- 5 I	ARR	
993.11	1- 5 I	ARR	
999	I	ARR	

## Forestry

No.	Crd't. Sec.	Day	Time	Instructor
SUMMER QUARTER				
593	2- 5 S		ARR	
999	S		ARR	
AUTUMN QUARTER				
221	5 L	M W F 2		COWEN
		T R 2 - 4		COWEN
310	5 L	M W F 10		TOUSE
		T R 10 -12		TOUSE
321	5 L	MTWRF 9		COWEN
431	5 L	MTWRF 8		TOUSE
593	2- 5 S		ARR	
897	1 S		ARR	
999				
WINTER QUARTER				
223	5 L	MTWRF 10		COWEN
323	5 L	MTWRF 9		TOUSE
432	5 L	MTWRF 8		TOUSE
593	2- 5 S		ARR	
897	1 S		ARR	
999	S		ARR	
SPRING QUARTER				
222	5 L	M W F 2		COWEN
		T R 2 - 4		COWEN
325	5 L	MTWRF 9		COWEN
433	5 L	MTWRF 8		TOUSE
593	2- 5 S		ARR	
897	1 S		ARR	
999	S		ARR	

## French

No.	Crd't.	Sec.	Day	Time	Instructor
SUMMER QUARTER					
101	5	R	MTWRF	8	
		R	MTWRF	10	
		R	MTWRF	11	
102	5	R	MTWRF	8	
		R	MTWRF	10	
103	5	R	MTWRF	8	
104	5	R	MTWRF	8	
		R	MTWRF	10	
105	5	R	MTWRF	10	
112	5+10	R	MTWRF	8	
	15	R	MTWRF	8	
	5+10	R	MTWRF	10	
	15	R	MTWRF	10	
	5+10	R	MTWRF	1	
	15	R	MTWRF	1	
401	3	R	M W F	10	
403	3		M W F	12	
421	5	LR	MTWRF	11	
571	5	R	MTWRF	10	
		R	MTWRF	11	
572	3	R	M W F	11	
		R	M W F	12	
573	3	R	M W F	12	
		R	M W F	1	
601	5	R	MTWRF	10	CRAWFORD
694	1-5	C	ARR		
993	1-5	C	ARR		
994	1-5	C	ARR		
999	I		ARR		
SUMMER 1ST TERM					
603	3	R10	MTWRF	11	FOUREMAN
629	3	LR	MTWRF	2	
631	3	L	MTW F	9	
831	3	R	R	3 - 5	
SUMMER 2ND TERM					
631	3-5	R	MTWRF	9	
832	2	S	R	3 - 5	
AUTUMN QUARTER					
101	5	R	MTWRF	8	
		R	MTWRF	9	
		R	MTWRF	10	
		R	MTWRF	11	
		R	MTWRF	12	
		R	MTWRF	1	
		R	MTWRF	2	
		R	MTWRF	3	
		R	MTWRF	4	
102	5	R	MTWRF	9	
		R	MTWRF	10	
		R	MTWRF	11	
		R	MTWRF	12	
		R	MTWRF	1	
		R	MTWRF	2	
		R	MTWRF	3	
		R	MTWRF	4	
103	5	R	MTWRF	8	
		R	MTWRF	9	
		R	MTWRF	10	
		R	MTWRF	11	
		R	MTWRF	12	
		R	MTWRF	1	
		R	MTWRF	2	
		R	MTWRF	3	
		R	MTWRF	4	
		R	MTWRF	5	
		R	MTWRF	6	
		R	MTWRF	7	
		R	MTWRF	8	
		R	MTWRF	9	
		R	MTWRF	10	
		R	MTWRF	11	
		R	MTWRF	12	
		R	MTWRF	1	
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		R	MTWRF	12	
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		R	MTWRF	10	
		R	MTWRF	11	
		R	MTWRF	12	
		R	MTWRF	1	
		R	MTWRF	2	
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		R	MTWRF	11	
		R	MTWRF	12	
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		R	MTWRF	10	
		R	MTWRF	11	
		R	MTWRF	12	
		R	MTWRF	1	
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		R	MTWRF	11	
		R	MTWRF	12	
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		R	MTWRF	11	
		R	MTWRF	12	
		R	MTWRF	1	
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		R	MTWRF	12	
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		R	MTWRF	10	
		R	MTWRF	11	
		R	MTWRF	12	
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		R	MTWRF	11	
		R	MTWRF	12	
		R	MTWRF	1	
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		R	MTWRF	11	
		R	MTWRF	12	
		R	MTWRF	1	
		R	MTWRF	2	
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		R	MTWRF	5	
		R	MTWRF	6	
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		R	MTWRF	8	
		R	MTWRF	9	
		R	MTWRF	10	
		R	MTWRF	11	
		R	MTWRF	12	
		R	MTWRF	1	
		R	MTWRF	2	
		R	MTWRF	3	
		R	MTWRF	4	
		R	MTWRF	5	
		R	MTWRF	6	
		R	MTWRF	7	
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		R	MTWRF	11	
		R	MTWRF	12	
		R	MTWRF	1	
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		R	MTWRF	6	
		R	MTWRF	7	
		R	MTWRF	8	
		R	MTWRF	9	
		R	MTWRF	10	
		R	MTWRF	11	
		R	MTWRF	12	
		R	MTWRF	1	
		R	MTWRF	2	
		R	MTWRF	3	
		R	MTWRF	4	
		R	MTWRF	5	
		R	MTWRF	6	
		R	MTWRF	7	
		R	MTWRF		



SPRING QUARTER

101	5	R	MTWRF	8	
		R	MTWRF	9	
		R	MTWRF	10	
		R	MTWRF	11	
		R	MTWRF	12	
		R	MTWRF	3	
102	5	R	MTWRF	10	
		R	MTWRF	11	
		R	MTWRF	12	
		R	MTWRF	1	
		R	MTWRF	2	
		R	MTWRF	3	
		R	MTWRF	4	
103	5	R	MTWRF	10	
		R	MTWRF	11	
		R	MTWRF	12	
		R	MTWRF	1	
		R	MTWRF	2	
		R	MTWRF	3	
		R	MTWRF	4	
104	5	R	MTWRF	8	
		R	MTWRF	9	
		R	MTWRF	10	
		R	MTWRF	12	
		R	MTWRF	1	
		R	MTWRF	3	
105	5	R	MTWRF	9	
		R	MTWRF	10	
		R	MTWRF	12	
		R	MTWRF	1	
163	5	R	MTWRF	12	
271	3	LR	M W F	12	
		LR	M W F	2	
401	3	R	M W F	11	
		R	M W F	1	
402	3	R	M W F	10	
		R	M W F	11	
		R	M W F	12	
404	5	R	MTWRF	9	
		R	MTWRF	10	
421	5	LR	MTWRF	9	
		LR	MTWRF	12	
422	5	LR	MTWRF	2	
571	5	R	MTWRF	10	
		R	MTWRF	11	
572	3	R	M W F	11	
		R	M W F	12	
		R	M W F	12	
573	3	R	M W F	12	
		R	M W F	1	
601	5	R	MTWRF	12	
602	3	R	M W F	10	
603	3	R	M W F	9	
621	5	LR	MTWRF	11	
627	3	LR	M W F	2	
694	1- 5	C	ARR	ARR	
783	3- 5	C	ARR	ARR	
822	3	LR	M	4 - 6	
			W	4	
826	3	LR	M W F	9	
829	3	LR	M W F	12	
833	5	S	R	3 - 5	
993	1- 5	C	ARR	ARR	
994	1- 5	C	ARR	ARR	
999		I	ARR	ARR	

Geodetic Science

No.	Crd't.	Sec.	Day	Time	Instructor
SUMMER QUARTER					
693	2-	9	I	ARR	
694	2-	9	D	ARR	
885	2-	9	I	ARR	
887	1-	5	S	ARR	
994	2-	9	D	ARR	
999			I	ARR	
SUMMER 1ST TERM					
686	5	L	MTWR	10	
		B	MTWRF	11 - 3	
689	5	L	MTWR	10	
		B	MTWRF	11 - 3	

SUMMER 2ND TERM

687	5	L		ARR	
		B		ARR	
688	5	L	MTWR	10	
		B	MTWRF	11 - 3	
994	2-	9	D	ARR	
AUTUMN QUARTER					
513	5	L	MT RF	10	
		B	T	2 - 5	
		B	W	2 - 5	
		B	MT RF	9	
522	5	L	MT RF	2 - 5	
		B	T	2 - 5	
		B	W	2 - 5	
625	4	L	M W F	12	
		B		ARR	
626	4	L	T R	10	
		B	W	1	
		B	F	2 - 5	
641	5	L	MTWRF	8	
657	5	L	M W F	11	
		B	T	1	
		B	F	2 - 5	
693	2-	9	I	ARR	
694	2-	9	D	ARR	
821	4	L	M W F	10	
		B		ARR	
847	5	L	MT RF	9	
		B	W	8 -10	
863	5	L	MT RF	1	
885	2-	9	I	ARR	
887	1-	5	S	ARR	
994	2-	9	D	ARR	
999		I		ARR	
WINTER QUARTER					
512	5	L	MT RF	1	
		B	M	8 -11	
		B	F	8 -11	
613	5	L	MTWRF	11	
614	5	L	MT RF	11	
		B	W	1 - 3	
		B	W	3 - 5	
624	5	L	MT RF	9	
		B	M	2 - 5	
		B	T	2 - 5	
627	5	L	MT RF	8	
		B	R	2 - 5	
		B	F	2 - 5	
642	5	L	MT RF	10	
		B	W	8 -11	
		B	M	2 - 5	
		B	T	2 - 5	
693	2-	9	I	ARR	
694	2-	9	D	ARR	
822	5	L		ARR	
		B	R	2 - 5	
825	5	L	MT RF	1	
		B		ARR	
844	5	L	M W F	10	
		B	W	1 - 3	
852	4	L	M W F	11	
		B	F	2 - 5	
868	5	L	MT RF	9	
		B	R	10 - 1	
885	2-	9	I	ARR	
887	1-	5	S	ARR	
994	2-	9	D	ARR	
999		I		ARR	
SPRING QUARTER					
631	3	L	M W F	8	
663	4	L	M W F	9	
		B		ARR	
693	2-	9	I	ARR	
694	2-	9	D	ARR	
812	5	L	MT RF	11	
		B	M	2 - 4	
823	5	L	MT RF	9	
		B		ARR	
826	5	L	MT RF	11	
		B		ARR	
846	5	L	MT RF	10	
		B	T	2 - 5	
		B	W	2 - 5	
		B	R	2 - 5	
853	3	L		ARR	
885	2-	9	I	ARR	
887	1-	5	S	ARR	
994	2-	9	D	ARR	
999		I		ARR	

Geography

No.	Crd't. Sec.	Day	Time	Instructor
SUMMER QUARTER				
200	5	D	MTWRF 9	
		D	MTWRF 11	
220	5	LB	MTWRF 8	
		LB	MTWRF 10	
		LB	MTWRF 1	
240	5	D	MTWRF 8	
		D	MTWRF 10	
530	3	D	M W F 10	
647	3	D	M W F 9	
693	3- 5	C	ARR	
999		I	ARR	
SUMMER 1ST TERM				
693	3- 5	C	ARR	
999		I	ARR	
SUMMER 2ND TERM				
693	3- 5	C	ARR	
999		I	ARR	
AUTUMN QUARTER				
200	5	D	MTWRF 9	
		D	MTWRF 10	
		D	MTWRF 11	
		D	MTWRF 1	
220	5	L	M W F 8	
		B	T R 8	
		B	T R 9	
		L	M W F 10	
		B	T R 9	
		B	T R 10	
		L	M W F 11	
		B	T R 11	
		B	T R 12	
		L	M W F 12	
		B	T R 12	
		B	T R 1	
		L	M W F 2	
		B	T R 1	
		B	T R 2	
240	5	D	MTWRF 8	
		D	MTWRF 9	
		D	MTWRF 10	
		D	MTWRF 11	
		D	MTWRF 12	
		D	MTWRF 1	
		D	MTWRF 2	
		D	MTWRF 3	
400	3	D	M W F 10	MURACO
405.01	3	D	M W F 1	PATTEN
412	3	D	M W F 9	LEVERSEDGE
520	4	D	M W F 2	BASILE
			ARR 1 HR	
530	3	D	M W F 9	VANDOREN
560	3	D	M W F 10	WITTHUHN
640	3	D	M W F 8	BROWN
650	3	D	M W F 11	GOLLEDGE
693	3- 5	C	ARR	
840.01	3- 5	S	ARR	CASETTI
840.02	3- 5	S	ARR	
850.02	3- 5	S	ARR	GOLLEDGE
882	4	S	ARR	RANDALL
883.01	4	S	ARR	KING
889	3- 5	S	ARR	
897	1	S	ARR	
983	5	S	ARR	KING
999		I	ARR	
WINTER QUARTER				
200	5	D	MTWRF 9	
		D	MTWRF 10	
		D	MTWRF 1	
		D	MTWRF 2	
220	5	L	M W F 8	
		B	T R 8	
		B	T R 9	
		L	M W F 10	
		B	T R 9	
		B	T R 10	
		L	M W F 11	
		B	T R 11	
		B	T R 12	
		L	M W F 12	
		B	T R 12	
		B	T R 1	
		L	M W F 1	
		B	T R 1	
		B	T R 2	

240	5	D	MTWRF 8	
		D	MTWRF 9	
		D	MTWRF 10	
		D	MTWRF 11	
		D	MTWRF 12	
		D	MTWRF 1	
		D	MTWRF 2	
		D	MTWRF 3	
400	3	D	M W F 8	MURACO
405.02	3	D	M W F 9	GAUTHIER
408	3	D	M W F 3	PATTEN
410	3	D	M W F 8	BROWN
415	3	D	M W F 2	RANDALL
530	3	D	M W F 9	DOWNEY
545	3	D	M W F 1	TAAFFE
580	3	D	M W F 1	BASILE
612	5	D	M W F 11	LEVERSEDGE
620	3	D	M W F 2	RAYNER
640	3	D	M W F 10	BROWN
647	3	D	M W F 10	LENTNEK
650	3	D	M W F 11	GOLLEDGE
660	3	D	M W F 11	COX
670	3	D	M W F 9	DEMKO
693	3- 5	C	ARR	
694	3	S	ARR	
820.01	3- 5	S	ARR	LENTNEK
840.03	3- 5	S	ARR	BASILE
860	3- 5	S	ARR	VANDOREN
883.02	4	S	ARR	
889	3- 5	S	ARR	KING
897	1	S	ARR	
983	5	D	ARR	
999		I	ARR	
SPRING QUARTER				
200	5	D	MTWRF 9	
		D	MTWRF 10	
		D	MTWRF 1	
		D	MTWRF 2	
220	5	L	M W F 8	
		B	T R 8	
		B	T R 9	
		L	M W F 10	
		B	T R 9	
		B	T R 10	
		L	M W F 11	
		B	T R 11	
		B	T R 12	
		L	M W F 12	
		B	T R 12	
		B	T R 1	
		L	M W F 2	
		B	T R 1	
		B	T R 2	
240	5	D	MTWRF 8	
		D	MTWRF 9	
		D	MTWRF 10	
		D	MTWRF 11	
		D	MTWRF 12	
		D	MTWRF 1	
		D	MTWRF 2	
		D	MTWRF 3	
		D 1	MTWRF 9	
400	3	D	M W F 8	MURACO
401	3	D	M W F 9	HUNKER
411	3	D	M W F 11	BROWN
412	3	D	M W F 10	DEMKO
580	3	D	M W F 1	BASILE
647	3	D	M W F 8	LENTNEK
650	3	D	M W F 11	GOLLEDGE
693	3- 5	C	ARR	
694	3	D	ARR	
800	3- 5	S	ARR	GAUTHIER
820.01	3- 5	S	ARR	LEVERSEDGE
840.01	3- 5	S	ARR	RAYNER
840.02	3- 5	S	ARR	CASETTI
840.03	3- 5	S	ARR	GAUTHIER
840.04	3- 5	S	ARR	DOWNEY
850.01	3- 5	S	ARR	PATTEN
860	3- 5	S	ARR	KING
885	4	S	ARR	COX
889	3- 5	S	ARR	VANDOREN
897	1	S	ARR	GOLLEDGE
983	5	S	ARR	
999		I	ARR	





## Geology (Cont'd)

## SPRING QUARTER

100	5	L	MTW F	8	
		L	MTW F	10	
		L	MTW F	1	
		B	R	8	
		B	R	9	
		B	R	10	
		B	R	11	
		B	R	12	
		B	R	1	
		B	R	2	
		B	R	3	
101	5	L	M WRF	2	
		B	T	8	-10
		B	T	10	-12
		B	T	12	-2
		B	T	2	-4
		L	T	7	-930P
		B	R	7	-830P
		B	R	830	-930P
102	5	L	M WRF	11	
		B	T	8	-10
		B	T	10	-12
		B	T	12	-2
		B	T	2	-4
		B	W	1	-3
201	5	L	MTW F	1	
		B	R	1	-3
203	3	LB	M W F	1	-3
570	1-3	C	ARR		
601	5	L	ARR		
		B	ARR		
611	5	B	T R	9	
		B	M W F	9	-11
613	5	LB	ARR		
631	4	L	T R	1	-3
632	3	L	M W F	3	
650	5	L	MTWRF	11	
651	5	L	MTWRF	8	
693.01	1-5	C	ARR		
693.03	1-5	C	ARR		
693.04	1-5	C	ARR		
693.05	1-5	C	ARR		
693.06	1-5	C	ARR		
693.07	1-5	C	ARR		
693.08	1-5	C	ARR		
693.09	1-5	C	ARR		
693.10	1-5	C	ARR		
693.11	1-5	C	ARR		
693.12	1-5	C	ARR		
693.13	1-5	C	ARR		
693.15	1-5	C	ARR		
693.16	1-5	C	ARR		
693.17	1-5	C	ARR		
693.18	1-5	C	ARR		
693.19	1-5	C	ARR		
810	5	S	ARR		
820	5	L	M W F	10	
		B	ARR		
821	3	L	M W F	2	
851	5	L	MTWRF	1	
874	3	L	M W F	9	
880	3	F	ARR		
896	1-3	S	ARR		
999		C	ARR		

MOORE

EVERETT  
EVERETT  
SWEET  
SWEET  
SCHOPF  
BULL  
ANDERSON  
GOLDTHWAIT  
PETTYJOHN

SHULTZ  
SHULTZ  
FAURE  
PETTYJOHN  
LAROCQUE  
BATES MAYE  
RULL

	5,10	D	MTWRF	1	
	15	D	MTWRF	1	
203	3	R	M W R	2	
571	5	R	MTWRF	12	
572	3	R	M W F	8	
		R	M W F	9	
650	3	S	M W F	10	
694	2-5	I	M	3	-5
860	5	S	R	7	-9
999		I	ARR		
SUMMER 1ST TERM					
650	1	S	M W F	10	
AUTUMN QUARTER					
101	5	R	MTWRF	8	
		R	MTWRF	9	
		R	MTWRF	10	
		R	MTWRF	11	
		R	MTWRF	12	
		R	MTWRF	1	
		R	MTWRF	2	
		R	MTWRF	3	
		R	MTWRF	4	
		R	M W F	7	-830P
102	5	R	MTWRF	8	
		R	MTWRF	9	
		R	MTWRF	10	
		R	MTWRF	12	
		R	MTWRF	1	
		R	MTWRF	2	
103	5	R	MTWRF	8	
		R	MTWRF	9	
		R	MTWRF	10	
		R	MTWRF	12	
		R	MTWRF	1	
104	5	R	MTWRF	8	
		R	MTWRF	9	
		R	MTWRF	10	
		R	MTWRF	11	
		R	MTWRF	1	
		R	MTWRF	2	
		R	MTWRF	3	
109	2	R	T R	1	
		R	M W	3	
113	5	R	MTWRF	3	
114	5	R	MTWRF	11	
203	3	R	M W F	2	
204	2	R	T R	2	
211	3	R	M W F	3	
225	5	O	MTWRF	10	
226	5	O	MTWRF	11	
227	5	O	MTWRF	12	
261	3	L	M W F	2	
571	5	R	MTWRF	8	
		R	MTWRF	12	
572	3	R	M W F	12	
573	3	R	M W F	4	
611	3	L	M W F	10	
623	3	L	M W F	1	
693	2-10	I	M	3	-5
694	2-10	I	ARR		
721	4	L	MT RF	11	
800	3	S	M	3	-5
821	3	S	M W F	9	
860	5	S	R	3	-5
870	3	S	T	3	-5
999		I	ARR		
WINTER QUARTER					
101	5	R	MTWRF	8	
		R	MTWRF	9	
		R	MTWRF	10	
		R	MTWRF	11	
		R	MTWRF	12	
		R	MTWRF	1	
		R	MTWRF	2	
		R	MTWRF	3	
		R	MTWRF	4	
102	5	R	MTWRF	8	
		R	MTWRF	9	
		R	MTWRF	10	
		R	MTWRF	11	
		R	MTWRF	12	
		R	MTWRF	1	
		R	MTWRF	2	
103	5	R	M W F	7	-830P
		R	MTWRF	8	
		R	MTWRF	10	
		R	MTWRF	11	
		R	MTWRF	12	
		R	MTWRF	1	
104	5	R	MTWRF	2	
		R	MTWRF	8	

BEKKER  
BEKKER  
BEKKER

BEKKER

SEIDLIN  
GOTTWALDGOTTWALD  
BELKIN  
HOFFMANNCUNZ  
BELKIN  
FLEISCHHAU  
SEIDLIN  
FLEISCHHAU

## German

No. Crd't. Sec. Day Time Instructor

## SUMMER QUARTER

101	5	R	MTWRF	8	
		R	MTWRF	9	
102	5	R	MTWRF	9	
		R	MTWRF	11	
103	5	R	MTWRF	11	
104	5	R	MTWRF	8	
		R	M W F	7	-830P
109	2	R	T R	10	
112	5,10	D	MTWRF	8	
	15	D	MTWRF	8	
	5,10	D	MTWRF	9	
	15	D	MTWRF	9	



		R	MTWRF	9		
		R	MTWRF	10		
		R	MTWRF	11		
		R	MTWRF	1		
		R	MTWRF	2		
		R	MTWRF	3		
109	2	R	T R	11		
		R	T R	1		
		R	M W	3		
114	5	R	MTWRF	3		
117	5	R	MTWRF	12		
203	3	R	M W F	2		
204	2	R	T R	2		
205	2	R	T R	2		
225	5	D	MTWRF	12		
226	5	D	MTWRF	10		
227	5	D	MTWRF	11		
262	3	L	M W F	2		
409	3	R	M W F	1		
571	5	R	MTWRF	12		
572	3	R	M W F	1		
612	3	L	M W F	10		
622	3	L	M W F	1		
630	3	R	M W F	3		
693	2-10	I	ARR			
694	2-10	I	W	3	- 5	
722	4	I	MT RF	11		
822	3	S	M W F	9		
860	5	S	R	3	- 5	
870	3	S	T	3	- 5	
999		I	ARR			
SPRING QUARTER						
101	5	R	MTWRF	8		
		R	MTWRF	9		
		R	MTWRF	10		
		R	MTWRF	11		
		R	MTWRF	1		
		R	MTWRF	2		
		R	MTWRF	3		
102	5	R	MTWRF	8		
		R	MTWRF	9		
		R	MTWRF	10		
		R	MTWRF	12		
		R	MTWRF	1		
		R	MTWRF	2		
103	5	R	MTWRF	3		
		R	MTWRF	8		
		R	MTWRF	9		
		R	MTWRF	10		
		R	MTWRF	1		
		R	MTWRF	2		
		R	MTWRF	3		
		R	M W F	7	- 830P	
104	5	R	MTWRF	9		
		R	MTWRF	10		
		R	MTWRF	11		
		R	MTWRF	12		
		R	MTWRF	1		
		R	MTWRF	2		
109	2	R	T R	11		
		R	T R	1		
		R	M W	3		
113	5	R	MTWRF	11		
118	5	R	MTWRF	12		
203	3	R	M W F	2		
204	2	R	T R	2		
205	2	R	T R	2		
225	5	D	MTWRF	11		
226	5	D	MTWRF	12		
227	5	D	MTWRF	10		
571	5	R	MTWRF	8		
		R	MTWRF	12		
572	3	R	M W F	11		
		R	M W F	1		
573	3	R	M W F	3		
606	3	L	M W F	3		
621	3	L	M W F	1		
630	3	R	M W F	3		
635	3	R	T R	8	-10	
693	2-10	I	ARR			
694	2-10	I	ARR			
723	3	L	M W F	11		
806	3	S	M W F	9		
823	3	S	M W F	9		
860	5	S	T	3	- 5	
999		I				

HOFFMANN

GOTTWALD  
GOTTWALD  
BEKKER  
WITTKOWSKI  
HAAS

SEIDLIN  
BEKKER  
HOFFMANN  
FLEISCHHAU

Graduate School Survey Course

No.	Crd't.	Sec.	Day	Time	Instructor
WINTER QUARTER					
801	2	D	T R	4	P AUSTIN
SPRING QUARTER					
801	2	D	T R	4	P AUSTIN

Greek

No.	Crd't.	Sec.	Day	Time	Instructor
SUMMER QUARTER					
112	15	R	MTWRF	8	GENOVESE
			MTWRF	8	GENOVESE
			MTWRF	1	GENOVESE
			MTWRF	1	GENOVESE
835	4	S	T R	9	-1030
AUTUMN QUARTER					
101	5	R	MTWRF	9	
221	5	DR	MTWRF	11	SCHLAM
604	3	DR	M W F	12	BARMAN
800	3	DR	T R	9	FORBES
811	4	DR	W	3	- 5
831	4	S	M	3	- 5
999		I	ARR		
WINTER QUARTER					
102	5	R	MTWRF	9	
222	3	DR	M W F	3	
603	3	DR	M W F	9	MORFORD
612	3	DR	T R	9	BARMANN
832	4	S	M	3	- 5
995	5	S	R	2	- 5
999		I	ARR		JONES
SPRING QUARTER					
103	5	R	MTWRF	9	
223	3	DR	M W F	12	DAVIS
606	3	DR	M W F	2	FORBES
645	3	DR	T	9	-11
834	4	S	T	2	- 4
996	5	S	R	2	- 5
999		I	ARR		JONES

Health Education

No.	Crd't.	Sec.	Day	Time	Instructor
SUMMER 1ST TERM					
101	1	L	M W	12	
		R	M W	1	
		R	T R	12	
		R	T R	1	
		R	T R	2	
102	1	D	MTWR	1	
		D	MTWR	2	
300	3	L	MTWRF	9	
301	3	L	MTWRF	11	
602	3	L	MTWRF	10	
610	4	L	MTWRF	10	-12
621	3	L	MTWRF	8	
690	4	W	MTWRF	9	- 4
693	1- 4	C	ARR		
994.02	3	L	MTWRF	1	
999		I	ARR		
SUMMER 2ND TERM					
300	3	L	MTWRF	10	GOHA

Health Education    (Cont'd)

301	3	L	MTWRF	11	GOHA
621	3	L	MTWRF	1	CUSHMAN
693	1- 4	C		ARR	
994.03	3	S	MTWRF	8	CUSHMAN
999		C		ARR	

AUTUMN QUARTER

101	1	L	M	11	
		R	W	11	
		L	M	4	
		R	W	4	
		L	T	10	
		R	R	10	
		L	T	11	
		R	R	11	
		L	T	12	
		R	R	12	
		L	T	1	
		R	R	1	
		L	T	4	
		R	R	4	
		L	W	11	
		R	F	11	
102	1	D	T	8	
		D	T	9	
		D	T	5	
103	3	L	M	9	
		L	M	2	
200	5	L	MTWRF	10	KAPLAN
		L	MTWRF	11	
300	3	L	M	9	
		L	M	11	
		L	M	2	
		L	M	3	
		L	M	4	
301	3	L	M	8	
		L	M	11	
		L	M	12	
		L	M	1	
		L	M	4	
602	3	L	T	7	- 930P BEYRER
621	3	L	M	8	
693	1- 4	C		ARR	
994.01	3	S		ARR	BEYRER
995	2	S	R	715- 915P	CUSHMAN
999		C		ARR	

WINTER QUARTER

101	1	L	M	11	
		R	W	11	
		L	M	4	
		R	W	4	
		L	T	10	
		R	R	10	
		L	R	9	
		R	R	10	
		L	T	11	
		R	R	11	
		L	T	12	
		R	R	12	
		L	T	1	
		R	R	1	
		L	T	4	
		R	R	4	
		L	W	11	
		R	F	11	
102	1	D	M	10	
		D	M	2	
		D	T	10	
		D	T	11	
		D	T	11	
		D	T	4	
		D	F	1	- 3
103	3	L	M	9	
		L	M	2	
200	5	L	MTWRF	8	
201	3	L	M	12	
300	3	L	M	8	
		L	M	9	
		L	M	10	
		L	M	1	
		L	M	2	
301	3	L	M	9	
		L	M	11	
		L	M	1	
		L	M	2	
		L	M	3	
610	4	L	MTWRF	1	
620	3	L	M	10	BEYRER
621	3	L	M	11	CUSHMAN
693	1- 4	C		ARR	
994.02	3	S		ARR	
996	3	L	T	4	- 530 BEYRER
999		C		ARR	

SPRING QUARTER

101	1	L	M	11	
		R	W	11	
		L	M	4	
		R	W	4	
		L	T	10	
		R	R	10	
		L	T	11	
		R	R	11	
		L	T	12	
		R	R	12	
		L	T	1	
		R	R	1	
		L	T	4	
		R	R	4	
		L	W	11	
		R	F	11	
102	1	D	T	7	- 9 P
		D	F	1	- 3
103	3	L	M	10	
		L	M	12	
200A	5	L	MTWRF	8	CUSHMAN
200B	5	L	MTWRF	8	BEYRER
201	3	L	M	1	
300	3	L	M	9	
		L	M	10	
		L	M	11	
		L	M	2	
		L	M	3	
301	3	L	M	8	
		L	M	11	
		L	M	1	
		L	M	2	
		L	M	3	
603	2	L	W	715- 915P	
610	4	L	MTWRF	9	
620	3	L	M	2	
693	1- 4	C		ARR	
994.03	3	S		ARR	
999		C		ARR	

Hebrew

No.	Crd't.	Sec.	Day	Time	Instructor
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AUTUMN QUARTER

101	5	R	MTWRF	12	MASHIAH
694	3	LR	M	1	
793	1- 5	I	ARR		MASHIAH
794	1- 5	I	ARR		MASHIAH

WINTER QUARTER

102	5	R	MTWRF	12	MASHIAH
694	3	LR	M	1	
793	1- 5	I	ARR		MASHIAH
794	1- 5	I	ARR		MASHIAH

SPRING QUARTER

694	1- 5	LR	M	12	MASHIAH
		LR	M	1	
793	1- 5	I	ARR		MASHIAH
794	1- 5	I	ARR		MASHIAH

History

No.	Crd't.	Sec.	Day	Time	Instructor
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SUMMER QUARTER

101	5	L	MTWRF	9	
		L	MTWRF	10	
102	5	L	MTWRF	8	
		L	MTWRF	9	
		L	MTWRF	10	
103	5	L	MTWRF	8	
		L	MTWRF	9	
		L	MTWRF	10	



104	5	L	MTWRF	11	
		L	MTWRF	9	
		L	MTWRF	10	
		L	MTWRF	11	
121	5	L	MTWRF	8	
		L	MTWRF	9	
		L	MTWRF	10	
		L	MTWRF	11	
122	5	L	MTWRF	9	
		L	MTWRF	11	
123	5	L	MTWRF	10	
		L	MTWRF	11	
215	5	L	MTWRF	9	
613	5	L	MTWRF	11	
631	5	L	MTWRF	9	
659	5	L	MTWRF	11	
660	5	L	MTWRF	12	
693	1-3		ARR		
731	3	D	T	3	- 5
783	3-5	I	ARR		
802	3	S	M	2	- 4
805	3	S	W	2	- 4
867	3	S	T	2	- 4
868	3	S	R	2	- 4
999		I	ARR		

SUMMER 1ST TERM

604	3	L	MTWRF	11	
661	3	L	MTWRF	10	
680	3	L	MTWRF	10	
693	1-3	I	ARR		
999			ARR		

SUMMER 2ND TERM

602	3	L	MTWRF	11	
662	3	L	MTWRF	10	
693	1-3	I	ARR		
999		I	ARR		

AUTUMN QUARTER

101	5	L	MTWRF	9	
		L	MTWRF	10	
		L	MTWRF	11	
		L	MTWRF	12	
		L	MTWRF	1	
		L	MTWRF	2	
		L	MTWRF	3	
		L	MTWRF	4	
102	5	L	MTWRF	8	
		L	MTWRF	9	
		L	MTWRF	10	
		L	MTWRF	11	
		L	MTWRF	12	
		L	MTWRF	1	
		L	MTWRF	2	
		L	MTWRF	3	
		L	MTWRF	4	
		L	T R	7	- 930P
103	5	L	MTWRF	8	
		L	MTWRF	9	
		L	MTWRF	10	
		R	M	1	
		R	T	4	
		R	T	7	P
		R	W	4	
		R	R	4	
		R	F	12	
		L	MTWRF	11	
		L	MTWRF	12	
		L	MTWRF	1	
		L	MTWRF	2	
		L	MTWRF	3	
		L	MTWRF	4	
		L	T R	7	- 930P
		L	M W	7	- 930P
104	5	L	MTWRF	8	
		L	MTWRF	9	
		L	MTWRF	10	
		L	MTWRF	11	
		L	MTWRF	12	
		L	MTWRF	1	
		L	MTWRF	2	
		L	MTWRF	3	
		L	MTWRF	4	
		L	MTWRF	5	
		L	MTWRF	6	
		L	MTWRF	7	
		L	MTWRF	8	
		L	MTWRF	9	
		L	MTWRF	10	
		L	MTWRF	11	
		L	MTWRF	12	
		L	MTWRF	1	
		L	MTWRF	2	
		L	MTWRF	3	
		L	MTWRF	4	
		L	MTWRF	5	
		L	MTWRF	6	
		L	MTWRF	7	
		L	MTWRF	8	
		L	MTWRF	9	
		L	MTWRF	10	
		L	MTWRF	11	
		L	MTWRF	12	

DORPALEN

ROBERTS

FLANDERS

FLANDERS

DORPALEN

MORLEY

ROBERTS

SMITH

BURNHAM

MCDONALD

SMITH

BURNHAM

MCDONALD

SMITH

R	F	12	
R	F	2	
R	F	3	
R	F	4	
L 1	MTWRF	12	
L	MTWRF	1	
L 1	MTWRF	1	
L	MTWRF	2	
L	MTWRF	3	
L	MTWRF	4	
L	T R	7	- 930P
L	M W	7	- 930
L	MTWRF	8	
L	MTWRF	10	
L	MTWRF	11	
L	MTWRF	12	
L	MTWRF	1	
L	MTWRF	2	
L	MTWRF	3	
L	MTWRF	4	
L	MTWRF	8	
L	MTWRF	9	
L	MTWRF	10	
L	MTWRF	11	
L	MTWRF	12	
L	MTWRF	1	
L	MTWRF	2	
L	MTWRF	3	
L	M W F	1	
L	M W F	12	
L	M W F	10	
L	M W F	2	
L	M W F	11	
L	M W F	10	
L	M W F	2	
L	M W F	1	
L	M W F	2	
L	M W F	10	
L	M W F	11	
L	M W F	11	
L	M W F	1	
L	MTWRF	1	
L	MTWRF	9	
L	MTWRF	2	
L	MTWRF	10	
L	MTWRF	11	
L	MTWRF	12	
L	MTWRF	1	
L	MTWRF	2	
L	MTWRF	3	
L	MTWRF	4	
L	MTWRF	5	
L	MTWRF	6	
L	MTWRF	7	
L	MTWRF	8	
L	MTWRF	9	
L	MTWRF	10	
L	MTWRF	11	
L	MTWRF	12	
L	MTWRF	1	
L	MTWRF	2	
L	MTWRF	3	
L	MTWRF	4	
L	MTWRF	5	
L	MTWRF	6	
L	MTWRF	7	
L	MTWRF	8	
L	MTWRF	9	
L	MTWRF	10	
L	MTWRF	11	
L	MTWRF	12	
L	MTWRF	1	
L	MTWRF	2	
L	MTWRF	3	
L	MTWRF	4	
L	MTWRF	5	
L	MTWRF	6	
L	MTWRF	7	
L	MTWRF	8	
L	MTWRF	9	
L	MTWRF	10	
L	MTWRF	11	
L	MTWRF	12	

122

123

210

211

212

215

231

232

233

251

601

606

610

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622

635

637

641

644

646

651

655

656

661

665

670

671

672

683

693

694

718

731

737

783

802

803

811

812

813

850

867

868

871

899

999

WINTER QUARTER

101	5	L	MTWRF	8	
		L	MTWRF	9	
		L	MTWRF	10	
		L	MTWRF	11	
		L	MTWRF	12	
		L	MTWRF	1	
		L	MTWRF	2	
		L	MTWRF	3	
		L	MTWRF	4	
		L	M W	7	- 930P
102	5	L	MTWRF	8	
		L	MTWRF	9	
		L	MTWRF	10	
		L	MTWRF	11	
		L	MTWRF	12	
		L	MTWRF	1	
		L	MTWRF	2	
		L	MTWRF	3	
		L	MTWRF	4	
		L	M W	7	- 930
103	5	L	MTWRF	8	
		L	MTWRF	9	
		L	MTWRF	10	
		L	MTWRF	11	
		L	MTWRF	12	
		L	MTWRF	1	
		L	MTWRF	2	
		L	MTWRF	3	
		L	MTWRF	4	
		L	M W	7	- 930
		L	MTWRF	8	
		L	MTWRF	9	
		L	MTWRF	10	

MCDONALD

DORPALEN

BOWERS

CHAZAN

MCDONALD

PEGUES

GRIMM

LARMOUR

POIRIER

CURRIEN

MORLEY

FISHER

MINEAR

STOAN

BOWERS

DILLON

ZAHNISER

GREEN

WEISENBURG

CHAZAN

DORPALEN

ROGEL

GRIMM

LARMOUR

WEISENBURG

FISHER

ROBERTS

COLES

GREEN

CHEESMAN

### History (Cont'd)

[illegible]



671	5	L	MTWRF	12	GREEN
674	3	L	MTWRF	2	
677	3	L	M	4 - 6	BRENNER
682	5	L	MTWRF	9	
693	1- 3		ARR		
694	1- 5	I	ARR		
735	5	L	MTWRF	12	ROGEL
741	3	L	T R	11	MORLEY
783	3- 5	I	ARR		
802	3	S	W	3 - 5	POIRIER
803	3	S	T	3 - 5	RULE
813	3	S	M	3 - 5	ROBERTS
850	3	S	ARR		
864	3	S	W	2 - 4	CHAZAN
866	3	S	W	4 - 6	BRENNER
867	3	S	T	3 - 5	DILLON
868	3	S	R	3 - 5	ZAHNISER
880	1	S	ARR		BURNHAM
899	1- 5	S	ARR		
999		I	ARR		

826	3	D	M W F	8 -10	DEACON
861	3	L	M W	10 -12	TAYLOR
			F	10	TAYLOR
993.01	2, 3	C	ARR		
993.02	2, 3	C	ARR		
993.03	2, 3	C	ARR		
993.04	2, 3	C	ARR		
993.05	2, 3	C	ARR		
993.06	2, 3	C	ARR		
993.07	2, 3	C	ARR		
993.08	2, 3	C	ARR		
993.09	2, 3	C	ARR		
993.10	2, 3	C	ARR		
999		I	ARR		
SUMMER 2ND TERM					
690.05	4	W	ARR		BLAKEMORE
845	3	D	M W F	-1130	DIRKS
993.01	2, 3	C	ARR		
993.02	3	C	ARR		
993.03	3	C	ARR		
993.04	2, 3	C	ARR		
993.05	2, 3	C	ARR		
993.06	2, 3	C	ARR		
993.07	2, 3	C	ARR		
993.08	2, 3	C	ARR		
993.09	2, 3	C	ARR		
993.10	2, 3	C	ARR		
999		C	ARR		
AUTUMN QUARTER					
90	1	D	T R	9 -11	ALEXANDER
228	3	D	T R	10 -12	EVERHART
		I	ARR	2 HRS	
270	3	L	M F	11	
		T	10 -12		
		B	T R	10 -12	
		L	M F	1	
		B	T	1 - 3	
		B	R	1 - 3	
		B	W	10 -12	
310	5	L	MTWRF	1	HERR
		L	MTWRF	2	HERR
313	3	D	M W F	3	
314	5	L	M W F	9	GREEN
		B	M W F	10 -12	GREEN
		D	T R F	8 -10	GREEN
320	3	D	M W F	11	EVERHART
		D	M W F	1	EVERHART
		D	T R	2 - 330	EVERHART
326	3	D	M W F	9	NEWARK
327	5	D	M W F	2 - 330	LLOYD
328	5	D	M W F	8	BLAKEMORE
		B	T R	8 -10	BLAKEMORE
		B	M W F	1	BLAKEMORE
		B	T R	1 - 3	
360	5	L	M W F	9	LEHR
		D	R	9 -11	LEHR
		L	T R	12 - 2	TAYLOR
		D	W	12	TAYLOR
		L	M W F	10	LEHR
		D	T	10 -12	LEHR
362	4	D	M W F	11	GRIFFING
		I	ARR	2 HRS	
		O	M W F	11	COOK
		I	ARR	2 HRS	
		D	M W F	2	
363	5	L	M W F	ARR 2 HRS	
		O	M W F	2 - 4	HEY
		D	M W F	2	HEY
371	5	L	MTW F	8	TAPSCOTT
		B	W	8 -10	TAPSCOTT
		B	W	1 - 3	
		B	J	- 5	
		L	MTW F	10	TAPSCOTT
		B	R	10 -12	TAPSCOTT
		B	W	3 - 5	TAPSCOTT
		B	T R	1 - 3	TAPSCOTT
374	5	L	T R	1	MARSHALL
		B	M W F	8 -10	MARSHALL
		B	M W F	1 - 3	MARSHALL
413	4	L	M W	9	SMATHERS
		B	T R	10 - 1	SMATHERS
		B	W F	10 - 1	SMATHERS
427	4	O	T R	8 -10	LLOYD
		B	ARR		
431	5	L	F	8 -10	CREMER
		B	M W	8 -12	CREMER
		B	T R	8 -12	CREMER
441	5	L	M W F	8	
		I	ARR	4 HRS	
442	15	W	ARR		
462	3	D	MTW	1	COOK
463	2	D	F	1	COOK
		B	M W	9 -11	COOK
		B	T R	9 -11	COOK

Home Economics

No.	Crd't.	Sec.	Day	Time	Instructor
SUMMER QUARTER					
322	5	L	MTW F	1	BEARD
		B	R	1 - 3	BEARD
		B	R	3 - 5	BEARD
327	5	O	M W F	2 - 330	LLOYD
363	5	L	M W F	2 - 4	HEY
		B	W	2 - 4	HEY
371	5	L	M W F	8 - 930	LAPITSKY
		B	R	8 -10	
		B	R	10 -12	
427	4	L	T R	8 -10	LLOYD
		B	ARR		
462	3	D	MTW	1	DICKERSCH
463	2	D	F	1	DICKERSCH
		B	M W	9 -11	
		B	T R	9 -11	
		B	F	9 -11	
		I	HR	ARR	
		B	M	2 - 4	
		I	HR	ARR	
		B	T R	2 - 4	
		B	W F	2 - 4	
589.10	5	W	ARR		HEY
616	3	O	T R	830-10	PRUDENT
672	5	O	M W F	9	MILLICAN
674	5	L	M W	8	MILLICAN
		B	M W	9 -11	MILLICAN
		B	F	8 -10	MILLICAN
794.04	3	B	ARR		
832	3	O	W	9 -11	HUBBARD
840	3	J	M W	3 - 5	DALRYMPLE
872	3	D	ARR		LAPITSKY
993.01	2, 3	C10	ARR		
	5	C10	ARR		
993.02	2, 3	C10	ARR		
	5	C10	ARR		
993.03	2, 3	C10	ARR		
993.04	2, 3	C10	ARR		
993.05	2, 3	C10	ARR		
	5	C10	ARR		
993.06	2, 3	C10	ARR		
	5	C10	ARR		
993.07	2, 3	C10	ARR		
	5	C10	ARR		
993.08	2, 3	C10	ARR		
	5	C10	ARR		
993.09	2, 3	C10	ARR		
	5	C10	ARR		
993.10	2, 3	C10	ARR		
	5	C10	ARR		
999		C	ARR		
SUMMER 1ST TERM					
443	3	D	MTWRF	12	DIRKS
667	3	D	T R	2 - 430	HEY
690.06	4	D	ARR		
794.02	3	D	ARR		VIVIAN
794.05	5	O	M W F	3 - 5	BLAKEMORE
794.09	3	O	T R	9 -1130	DIRKS
794.01	3	O	T R	1 - 330	TAYLOR
802A	3	D	M W F	830-10	PRUDENT
802B	3	O	ARR		VIVIAN

### Home Economics (Cont'd)

[illegible]



314	5	L	M W	9	GREEN
		B	M W F	10 -12	GREEN
		B	T R F	8 -10	GREEN
320	3	L	M W F	9	EVERHART
		L	T R	2 - 330	EVERHART
322	5	L	M T W F	9	BEARD
		L	M T W F	2	BEARD
		B	F	10 -12	BEARD
		B	F	1 - 3	BEARD
		B	F	3 - 5	BEARD
327	5	L	M W F	2 - 330	MALOCH
328	5	L	M W F	8	BLAKEMORE
		B	T R	8 -10	BLAKEMORE
		L	M W F	10	EVERHART
		B	T R	10 -12	EVERHART
		L	M W F	1	BLAKEMORE
		B	T R	1 - 3	BLAKEMORE
360	5	L	M W F	9	LEHR
		D	R	9 -11	LEHR
		L	T R	12 - 2	TAYLOR
		D	W	12	TAYLOR
		L	M W F	10	
		D	T	10 -12	
362	4	L	M W F	11	GRIFFING
		I	ARR	2 HRS	
		L	M W F	11	
		I	ARR	2 HRS	
		L	M W F	2	
		I	ARR	2 HRS	
363	5	L	M T W	2	LEHR
		D	R	1 - 3	LEHR
371	5	L	M T W F	8	TAPSCOTT
		B	R	8 -10	TAPSCOTT
		B	R	10 -12	TAPSCOTT
		L	M T W F	1	TAPSCOTT
		D	W	3 - 5	
		D	R	1 - 3	
		D	R	3 - 5	
374	5	L	T R	1	MARSHALL
		B	M W F	8 -10	MARSHALL
		B	M W F	1 - 3	MARSHALL
		B	M W F	3 - 5	
413	4	L	M W	9	SNATHERS
		B	T R	10 - 1	SNATHERS
		B	W F	10 - 1	SNATHERS
427	4	L	T R	8 -10	NEWARK
431	5	L	F	8 -10	CREMER
		B	M W	8 -12	CREMER
		B	T R	8 -12	CREMER
435	4	L	T R	8 -10	DALRYMPLE
441	5	L	M W F	8	
		I	ARR	4 HRS	
442	15	K	ARR		
462	3	D	M T W	1	COOK
463	2	B	M W F	9	COOK
		B	M W	9 -11	COOK
		B	T R	9 -11	COOK
		I	F	9 -11	COOK
		B	ARR	2 HRS	PHILPOT
		I	M	2 - 4	
		B	ARR	2 HRS	PHILPOT
		B	T R	2 - 4	PHILPOT
		B	W F	2 - 4	PHILPOT
470	5	L	M W F	9 -1030	MILLICAN
471	5	L	M T W	12	LAPITSKY
571	5	B	T	9 -12	LAPITSKY
		B	R	9 -12	LAPITSKY
589.07	3	W	ARR		
589.08	3	W	ARR		
589.09	5	W	ARR		
593.01	3	C	ARR		
593.02	3	C	ARR		
593.03	3	C	ARR		
593.04	3	C	ARR		
593.05	3	C	ARR		
593.06	3	C	ARR		
593.07	3	C	ARR		
593.08	3	C	ARR		
593.09	3	C	ARR		
593.10	3	C	ARR		
594.10	5	W	ARR		
596	2	S	T R	1	GREEN
612	3	L	M W F	10	PRUDENT
615	5	L	M W	2	PRUDENT
		B	T R F	2 - 5	PRUDENT
623	5	B	M W F	9 -11	BLOOM
		B	ARR	2 HRS	
628	3	L	T R	7 - 830P	BLAKEMORE
632	5	L	M W F	2	
		B	W	3 - 6 P	
674	5	L	T R	2 - 4	
		B	M W F	2 - 4	
794.08	3	D	ARR		
794.09	3	D	ARR		
794.10	3	D	T	7 - 930P	
822	3	S	T R	10 -1130	HUNT
826	3	D	T R	3 - 430	DEACON

844	5	D	T R	8 -10	DIRKS
		I	ARR	1 HR	
846	3	D	W	730- 930P	
860	3	D	W	4 - 630	TAYLOR
872	3	S	ARR		GILMORE
993.01	2	3	C10	ARR	
993.02	2	3	C10	ARR	
993.03	2	3	C10	ARR	
993.04	2	3	C10	ARR	
993.05	2	3	C10	ARR	
993.06	2	3	C10	ARR	
993.07	2	3	C10	ARR	
993.08	2	3	C10	ARR	
993.09	2	3	C10	ARR	
993.10	2	3	C10	ARR	
898	1	C10		4	
999		C		ARR	

## Horticulture

No.	Crd't.	Sec.	Day	Time	Instructor
SUMMER QUARTER					
489	2	W		ARR	
593	2- 5	C		ARR	
641	5	L	M W F	1	
		B	M W F	1 - 5	
794A	2	C		2 - 4	
993	2	C		ARR	
999		C		ARR	
AUTUMN QUARTER					
111	3	L	M W F	10	REISCH
203	5	BD	M T W R F	11	HARTMAN
432	5	L	M W F	11	REISCH
		B	W F	1 - 3	REISCH
		B	W F	3 - 5	
461	5	L	T W R F	9	HARTMAN
		B	T	1 - 3	HARTMAN
489	2	W		ARR	
593	3, 5	C		ARR	
599	2, 3	C		ARR	
		C		ARR	
609	5	L	M W R	1	KRETCHMAN
		B	W R	2	KRETCHMAN
611	5	L	M T W R F	3	HARTMAN
621	5	L	M T W R	8	KIPLINGER
		B	M	2 - 5	KIPLINGER
642	5	L	M W F	8	GEISMAN
		B	M W	9 -11	GEISMAN
650	5	L	M W F	1	ALBAN
		B	T R	1 - 3	ALBAN
690	2	S		ARR	
694	2, 3	C		ARR	
		C		ARR	
699	2	S		ARR	
731	5	L	M T W F	9	
		B	T	1 - 4	
794B	2	L	F	9 -11	GOULD
801C	2- 3	C		ARR	KRETCHMAN
801D	2- 3	C		ARR	ALBAN
801F	3	C		ARR	GOULD
801H	2- 3	C		ARR	KIPLINGER
804	2	S		4	
805	4	C		ARR	HOWLETT
811	5	L	M W	2	HOWLETT
		B	W	3 - 5	HOWLETT
		B	ARR	2 HRS	HOWLETT
893	2	C		ARR	
	3, 5	C		ARR	
897	1	S		ARR	
999		C		ARR	
WINTER QUARTER					
433	5	L	M W F	11	REISCH
		B	W F	1 - 3	REISCH
441	5	L	M W F	2	GOULD
		B	M W	3 - 5	GOULD
450	5	L	M T R F	1	ALBAN
		B	W	1 - 3	ALBAN
462	5	L	T W R F	11	HILL
		B	T	3 - 5	HILL
489	2	W		ARR	
593	3, 5	C		ARR	
599	2, 3	C		ARR	
		C		ARR	
601	3	L	M W	10	BROWN
		B	F	10 -12	BROWN

Horticulture (Cont'd)

622	5	L	MTWR	8	KIPLINGER
		B	M	2 - 5	KIPLINGER
690	2	S	ARR		
694	2, 3	C	ARR		
	5	C	ARR		
699	2	S	ARR		
732	5	L	MTW F	9	
		B	T	1 - 3	
741	5	L	M W F	8	GOULD
		B	T R	8 -10	GOULD
794C	2	L	F	3 - 5	GEISMAN
801B	2- 3	C	ARR		HARTMAN
801E	2- 3	C	ARR		W BROWN
804	2	S	M	4	
812	5	L	T R	2	HILL
		B	W	3 - 5	HILL
				ARR 2 HRS	
897	1	S	ARR		
993	2, 3	C	ARR		
	5	C	ARR		
999		C	ARR		
SPRING QUARTER					
203	5	BD	MTWRF	10	HARTMAN
241	3	L	M W F	1	GOULD
431	5	B	M W F	9	
		B	M W	1 - 3	
		B	M W	3 - 5	
434	5	L	M W F	11	REISCH
		B	W F	1 - 3	
442	5	L	M W F	2	GOULD
		B	T R	1 - 3	GOULD
489	2	W	ARR		
515	5	L	M WRF	8	
		B	R	1 - 3	
		B	R	3 - 5	
593	2, 3	C	ARR		
	5	C	ARR		
599	2, 3	C	ARR		
	5	C	ARR		
610	3	C	M W F	2	ALBAN
623	5	L	MTWR	8	KIPLINGER
		B	M	2 - 5	KIPLINGER
624	5	L	MT R	10	KIPLINGER
		B	T R	1 - 3	REISCH
652	5	L	MTW F	8 - 9	BROWN
		B	R	3 - 5	BROWN
690	2	S	ARR		
694	2, 3	C	ARR		
	5	C	ARR		
699	2	S	ARR		
733	5	L	MTW F	9	
		B	T	1 - 4	
794D	2	L	W F	8	GOULD
801A	2- 3	C	ARR		HARTMAN
801G	2- 3	C	ARR		GOULD
801I	3	C	ARR		REISCH
897	1	S	ARR		
898	1	S	ARR		
893	2, 3	C	ARR		
	5	C	ARR		
999		C	ARR		

Industrial Engineering

No.	Crd't.	Sec.	Day	Time	Instructor
SUMMER QUARTER					
811	3-12	C		ARR	
821	3-12	C		ARR	
828	3-12	C		ARR	
851	3-12	C		ARR	
861	3-12	C		ARR	
862	3	C		ARR	
866	3-12	L		ARR	
899	1- 5	S		ARR	
999		I		ARR	
SUMMER 1ST TERM					
693	3	L	M W F	12 - 2	
999		I		ARR	

SUMMER 2ND TERM

693	1- 3	C		ARR	
750.03	3	L	M W F	12 - 2	
AUTUMN QUARTER					
202	5	LB	MTWRF	12 - 2	
401	4	L	T R	2	
		B	M W F	2	
			M W F	3	
		L	T R	2	
		B	M W F	2	
			M W F	3	
		L	T R	2	
		B	M W F	2	
			M W F	3	
403	5	L	MTWRF	11	
431	3	LB	T R	10 -12	
501	5	L	M W F	9	
		B	T R	9 -11	
		B	T R	1 - 3	
502	5	L	M W F	8	
		B	T R	3 - 5	
503	3	L	M W F	10	
		L	M W F	11	
506	5	L	M W F	10	
		B	T R	10 -12	
507	3	L	M W F	9	
531	3	LB	M W F	1 - 3	
532	3	LB	M W	8 -10	
		LB	M W	1 - 3	
534	4	L	M WRF	8	
		L	MTW F	1	
685	6	W			BAKER
693	1- 6	C		ARR	
750.02	3	L	S	9 -12	BAKER
750.03	3	L	M W F	10	
750.04	3	L	M W F	1	BISHOP
750.05	3	L	M W F	8	MORRIS
750.06	3	L	M W F	2	BISHOP
750.08	3	L	M W F	9	MORRIS
750.09	3	L	M W F	11	BROWN
750.10	3	L	M W F	2	OVERBY
811	3-12	C		ARR	
821	3-12	C		ARR	KIBBEY
828	3-12	C		ARR	MILLER
830	3	C	M W F	1	
840	3	C		ARR	
842	3	L	M W F	12	GRIFFIN
851	3-12	C		ARR	BAKER
861	3-12	C		ARR	BISHOP
862	3	L		ARR	MORRIS
863	3	C		ARR	BISHOP
866	3-12	L		ARR	FRANCIS
871	3-12	C		ARR	ROCKWELL
881	2	S	M	3 - 5	
899	1- 5	S		ARR	
999		I		ARR	
WINTER QUARTER					
401	4	L	T R	8	
		B	M W F	8	
			M W F	9	
		L	T R	8	
		B	M W F	8	
			M W F	9	
		L	T R	8	
		B	M W F	8	
			M W F	9	
		L	T R	10	
		B	M W F	10	
			M W F	11	
		L	T R	10	
		B	M W F	10	
			M W F	11	
		L	T R	10	
		B	M W F	10	
			M W F	11	
402	5	L	M W F	1	
		B	T R	12 - 2	
		L	M W F	2	
		B	T R	2 - 4	
501	5	L	M W F	9	
		B	T R	8 -10	
503	3	L	M W F	11	
504	3	L	M W F	11	
		L	M W F	1	
505	5	L	T R S	9	KIBBEY
		B	T R S	10 -12	KIBBEY
		B	T R	1 - 4	KIBBEY
532	3	LB	M W	1 - 3	
		LB	M W	3 - 5	
534	4	L	MTW F	9	
601	3	L	M W F	10	NEUHARDT
		L	M W F	2	NEUHARDT
693	1- 6	C		ARR	



750.01	3	L	M W F	10	
750.02	3	L		S	-12
750.06	3	L	M W F	9	
750.07	3	L	M W F	8	
750.08	3	L	M W F	3	
750.11	3	L	M W F	2	
750.13	3	L	M W F	1	
811	3-12	C		ARR	
812	3	L	M W F	8	
821	3-12	C		ARR	
828	3-12	C		ARR	
831	3	L	M W F	1	
840	3	C		ARR	
842	3	L	M W F	3	
843	3	L	M W F	12	
851	3-12	C		ARR	
861	3-12	C		ARR	
863	3	L	M W F	11	
866	3-12	C		ARR	
871	3-12	C		ARR	
881	2	S	M W	3	
899	1- 5	S		ARR	
999		I		ARR	

SPRING QUARTER

201	3	LB	M W F	2	- 4
202	5	LB	MTWRF	12	- 2
401	4	L	T R	10	
		B	M W F	10	
			M W F	11	
		L	T R	10	
		B	M W F	10	
			M W F	11	
		L	T R	10	
		B	M W F	10	
402	5	L	M W F	11	
		B	M W F	8	
		L	T R	8	-10
		B	M W F	2	
			T R	2	- 4
403	5	L	MTWRF	10	
		L	MTWRF	11	
502	5	L	M W F	8	
		B	M W	10	-12
			T R	10	-12
504	3	L	M W F	10	
505	5	L	T R S	9	
		B	T R S	10	-12
			M W F	3	- 5
506	5	L	M W F	9	
		B	T R	8	-10
			T R	1	- 3
507	3	L	M W F	1	
		L	M W F	2	
532	3	LB	T R	1	- 3
			T R	3	- 5
533	3	L	M W F	4	
534	4	L	M WRF	10	
		L	MTW F	3	
589	2	F		ARR	
601	3	L	M W F	11	
693	1- 6	C		ARR	
750.02	3	L		S	-12
750.03	3	L	M W F	3	
750.05	3	L	M W F	11	
750.09	3	L	M W F	1	
750.12	3	L	T R	2	- 2
		B	T R	3	- 5
750.13	3	L	M W F	2	
811	3-12	C		ARR	
821	3-12	C		ARR	
828	3-12	C		ARR	
832	3	L	M W F	4	
840	3	C		ARR	
843	3	L	M W F	12	
844	3	L	M W F	8	
851	3-12	C		ARR	
861	3-12	C		ARR	
862	3	L	M W F	9	
863	3	L	M W F	12	
866	3	C		ARR	
871	3-12	C		ARR	
881	2	S	T	3	- 5
899	1- 5	S		ARR	
999		I		ARR	

BAKER  
BISHOP  
FRANCIS  
MORRIS  
MILLER  
ROCKWELL

GIFFIN  
BAKER  
MORRIS  
BISHOP

ROCKWELL  
NEUHARDT

AUTUMN QUARTER

230	5	L	MTWR	3	DEMKO
			F	3	
783	3- 5	S		ARR	

WINTER QUARTER

100	5	L	MTWRF	2	RAINEY
230	5	L	MTWRF	3	
501	5	L		ARR	NEWZER
783	3- 5	S		ARR	

SPRING QUARTER

235	5	L	MTWRF	2	
783	3- 5	S		ARR	

Italian

No.	Crd't.	Sec.	Day	Time	Instructor
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SUMMER QUARTER

112	5,10	R	MTWRF	9	
	15	R	MTWRF	9	
	5,10	R	MTWRF	10	
	15	R	MTWRF	10	
	5,10	R	MTWRF	12	
	15	R	MTWRF	12	
694	1- 5	C		ARR	
993	1- 5	C		ARR	
994	1- 5	C		ARR	
999		I		ARR	

AUTUMN QUARTER

101	5	R	MTWRF	9	
		R	MTWRF	10	
		R	MTWRF	11	
		R	MTWRF	12	
		R	MTWRF	1	
		R	MTWRF	2	
102	5	R	MTWRF	9	
		R	MTWRF	12	
103	5	R	MTWRF	10	
		R	MTWRF	12	
104	5	R	MTWRF	11	
		R	MTWRF	2	
423	5	LR	MTWRF	12	
624	5	LR	MTWRF	10	
694	1- 5	C		ARR	
993	1- 5	C		ARR	
994	1- 5	C		ARR	
999		I		ARR	

WINTER QUARTER

101	5	R	MTWRF	9	
		R	MTWRF	10	
		R	MTWRF	11	
		R	MTWRF	12	
		R	MTWRF	2	
102	5	R	MTWRF	9	
		R	MTWRF	10	
		R	MTWRF	11	
		R	MTWRF	12	
		R	MTWRF	1	
103	5	R	MTWRF	2	
104	5	R	MTWRF	11	
		R	MTWRF	1	
421	5	LR	MTWRF	12	
533	5	LR	MTWRF	1	MANCINI
621	5	LR	MTWRF	10	CASSELL
694	1- 5	C		ARR	
993	1- 5	C		ARR	
994	1- 5	C		ARR	
999		I		ARR	

SPRING QUARTER

101	5	R	MTWRF	9	
		R	MTWRF	11	
102	5	R	MTWRF	8	
		R	MTWRF	9	
		R	MTWRF	10	
		R	MTWRF	12	
103	5	R	MTWRF	10	
		R	MTWRF	11	
104	5	R	MTWRF	1	
202	5	R	MTWRF	12	
422	5	LR	MTWRF	12	CASSELL
534	5	D	MTWRF	1	CASSELL

International Studies

No.	Crd't.	Sec.	Day	Time	Instructor
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Italian (Cont'd)

625	5	LR	MTWRF	10	MANCINI
694	1- 5	C	ARR		
993	1- 5	C	ARR		
994	1- 5	C	ARR		
999		I	ARR		

Japanese

No.	Crd't.	Sec.	Day	Time	Instructor
AUTUMN QUARTER					
101	5	R	MTWRF	9	KAWAI
104	5	R	MTWRF	1	KAWAI
251	5	L	MTWRF	2	WRIGHT
609	3	R	M W F	11	WRIGHT
693	2- 5	D	ARR		
WINTER QUARTER					
102	5	R	MTWRF	9	KAWAI
252	5	L	MTWRF	2	WRIGHT
405	3	R	M W F	1	KAWAI
610	3	R	M W F	11	WRIGHT
624	5	L	MTWR	10	FILLMORE
693	2- 5	D	ARR		
SPRING QUARTER					
103	5	R	MTWRF	9	KAWAI
406	3	R	M W F	1	KAWAI
611	3	R	M W F	11	WRIGHT
626	5	L	MTWR	3	FILLMORE
651	3	R	M W F	2	WRIGHT
693	2- 5	D	ARR		

Journalism

No.	Crd't.	Sec.	Day	Time	Instructor
SUMMER QUARTER					
205	1	B		ARR	
555	5	D 9	MTWRF	1	
621	1	B		ARR	
622	2- 5	B		ARR	
641	5	L	MTWR	9	
		B	F	9 -11	
999		I		ARR	
SUMMER 1ST TERM					
101	3	LR	MTWRF	9	
201	3	LB	MTWR	10 -12	
202	3	LB	MTWR	1 - 3	
211	3	L 2	MTWR	10	
		B 2	F	2 - 4	
401	3	L	MTW F	2	
		B	R	2 - 4	
601	3	D	MTWRF	1	
623	3	D	MTWRF	10	
631	3	L	MTWRF	11	
642	3	L	MTWR	9	
		S	ARR		
693.01	3- 5	I	ARR		
693.02	3- 5	I	ARR		
693.03	3- 5	I	ARR		
693.04	3- 5	I	ARR		
693.05	3- 5	I	ARR		
899	1- 5	S	ARR		
999			ARR		
SUMMER 2ND TERM					
102	3	D	MTWRF	9	
202	3	LB	MTWR	10 -12	
203	3	L	MTWRF	1	
		B	T R	2 - 4	
204	3	L	MTWR	9	
		B	M W	2 - 4	

602	3	L	MTWRF	11	
693.01	3- 5	I	ARR		
693.02	3- 5	I	ARR		
693.03	3- 5	I	ARR		
693.04	3- 5	I	ARR		
693.05	3- 5	I	ARR		
801A	3- 5	S	M R	1 - 4	
899	1- 5	S	ARR		
999		I	ARR		
AUTUMN QUARTER					
101	3	L	M F	4	HUDSON
		R	T	4	
		R	W	4	
		R	R	4	
102	3	D	M W F	1	PETERSON
201	3	L	M W F	8	HUDSON
		B	T R	8 -10	BRIAN
		B	M W F	9	BRIAN
		B	M W F	8 -10	BRIAN
		B	T R	3 - 5	BRIAN
202	3	L	M T	1 - 3	HUDSON
		B	T R	1 - 3	HUDSON
		L	M W F	1 - 3	HUDSON
		B	M W F	3 - 5	HUDSON
203	3	L	M W F	8 -10	PETERSON
		B	M W F	8 -10	PETERSON
		B	T	ARR	PETERSON
		B	W	ARR	PETERSON
		B	R	ARR	PETERSON
204	3	L	M W	10	
		B	T	10 -12	
		L	M W	1	
		B	T	1 - 3	
		L	M W F	3 - 5	
		B	M W F	3 - 5	
205	2	B		ARR	CLARKE
206	3	D	M W F	10	GAUMER
211	3	L	M W	3	GAUMER
		B	T	3 - 5	
401	3	L	T R	11	DRENTEN
		B	R	1 - 3	DRENTEN
555.01	5	D	MTWRF	9	
		D	MTWRF	11	
		D	MTWRF	2	
555.02	5	D	MTWRF	10	
555.03	5	D	MTWRF	1	
555.04	5	D	MTWRF	4	
601	3	D	M W F	10	HUNT
		D	T	7 -10 P	NORTON
		D	M W F	2	HUNT
602	3	D	M W F	1	NORTON
611	3	L	M W F	11	DRENTEN
		B	T	1 - 3	DRENTEN
621.01	2	B		ARR	
621.02	2	B		ARR	DRENTEN
621.03	2	B		ARR	PETERSON
622.01	2- 4	B		ARR	
622.02	2- 4	B		ARR	DRENTEN
622.03	2- 4	B		ARR	PETERSON
623	3	D	M W F	11	HUNT
624	3	D	M W F	2	UNDERWOOD
625	3	LB	T	1 - 4	MULLINS
626	5	L	MTW F	9	GAUMER
		B	R	2 - 5	GAUMER
627	3	L	M	4	
		B	T R	8 -10	
631	3	L	M W F	9	SEIFERT
		L	M	7 -10 P	SEIFERT
634	3	L	W	7 -10 P	
641	5	L	MTWR	10	MULLINS
		B	F	10 -12	MULLINS
642	3	L	T	2	MAGUIRE
		S	R	1 - 3	MAGUIRE
643	3- 5	S	M W F	11	GOULD
651	3	L	M W F	9	RARICK
693.01	3- 5	I	ARR		MAGUIRE
693.02	3- 5	I	ARR		DRENTEN
693.03	3- 5	I	ARR		PETERSON
693.04	3- 5	I	ARR		NORTON
693.05	3- 5	I	ARR		SEIFERT
783	3- 5	S	W F	8 - 9	HUDSON
801A	3- 5	S	R	1 - 4	RARICK
802A	305	S	T	8 -10	MAGUIRE
803C	3- 5	S	M	7 -10 P	PETERSON
811	5	S	T R	9 -11	GOULD
899	1- 5	S	ARR		
999			ARR		
WINTER QUARTER					
101	3	L	M F	4	HUDSON
		R	T	4	
		R	W	4	
		R	R	4	



102	3	D	M W F	11	PETERSON
201	3	L	M W F	9	BRIAN
		L	M W F	8	BRIAN
		L	M W F	2	HUDSON
		L	M W F	1	HUDSON
		L	M W F	4	BRIAN
202	3	L	M T R	3	BRIAN
		L	M T R	3	BRIAN
		L	M W F	3	BRIAN
		L	M W F	3	HUDSON
		L	M W F	1	HUDSON
203	3	L	M W F	3	HUDSON
		L	M W F	3	PETERSON
		L	M W F	3	PETERSON
		L	M W F	3	PETERSON
204	3	L	M W F	10	BOSTWICK
		L	M W F	10	BOSTWICK
		L	M W F	1	CLARKE
		L	M W F	1	CLARKE
		L	M W F	2	BARTON
205	2	L	M W F	3	BARTON
206	3	L	M W F	10	CLARKE
211	3	L	M W F	10	GAUMER
		L	M W F	3	GAUMER
401	3	L	M W F	9	DRENTEN
		L	M W F	1	DRENTEN
555.01	5	O	M T W R F	9	LAEUFER
		O	M T W R F	11	LAEUFER
		O	M T W R F	2	BARTON
555.02	5	O	M T W R F	10	BARTON
555.03	5	O	M T W R F	1	SCHAEFFER
555.04	5	O	M T W R F	4	HUNT
601	3	O	M W F	10	NORTON
		O	M W F	7	NORTON
602	3	O	M W F	1	DRENTEN
611	3	L	M W F	11	DRENTEN
		L	M W F	1	HOLSINGER
612	3	L	M W F	1	CLARKE
621.01	2	L	M W F	ARR	DRENTEN
621.02	2	L	M W F	ARR	PETERSON
621.03	2	L	M W F	ARR	PETERSON
622.01	2-4	L	M W F	ARR	DRENTEN
622.02	2-4	L	M W F	ARR	PETERSON
622.03	2-4	L	M W F	ARR	HUNT
623	3	O	M W F	11	UNDERWOOD
624	3	O	M W F	2	MULLINS
625	3	L	M W F	1	GAUMER
626	5	L	M W F	11	GAUMER
		L	M W F	2	GAUMER
627	3	L	M W F	8	GAUMER
		L	M W F	8	GAUMER
631	3	L	M W F	9	SEIFERT
633	3	L	M W F	11	SEIFERT
		L	M W F	7	MULLINS
641	5	L	M T W R	10	MULLINS
		L	M T W R	10	MULLINS
642	3	L	M T W R	9	MAGUIRE
		L	M T W R	9	MAGUIRE
643	3-5	L	M W F	11	GOULD
693.01	3-5	L	M W F	ARR	MAGUIRE
693.02	3-5	L	M W F	ARR	DRENTEN
693.03	3-5	L	M W F	ARR	PETERSON
693.04	3-5	L	M W F	ARR	NORTON
693.05	3-5	L	M W F	ARR	SEIFERT
783	3-5	L	M W F	ARR	HUDSON
801A	3-5	L	M W F	7	RARICK
802C	3-5	L	M W F	1	PETERSON
803A	3-5	L	M W F	9	UNDERWOOD
803B	3-5	L	M W F	1	HOLSINGER
813	5	L	M W F	1	GOULD

205	2	B	M W F	3	CLARKE
206	3	O	M W F	10	GAUMER
211	3	L	M W F	3	GAUMER
		L	M W F	3	GAUMER
401	3	L	M T R	11	DRENTEN
		L	M T R	1	DRENTEN
555.01	5	O	M T W R F	9	DRENTEN
		O	M T W R F	11	DRENTEN
		O	M T W R F	2	DRENTEN
555.02	5	O	M T W R F	10	DRENTEN
555.03	5	O	M T W R F	1	DRENTEN
555.04	5	O	M T W R F	4	DRENTEN
601	3	O	M W F	10	HUNT
		O	M W F	7	NORTON
602	3	O	M W F	1	NORTON
611	3	L	M W F	11	DRENTEN
		L	M W F	1	DRENTEN
612	3	L	M W F	1	HOLSINGER
621.01	2	L	M W F	ARR	DRENTEN
621.02	2	L	M W F	ARR	PETERSON
621.03	2	L	M W F	ARR	PETERSON
622.01	2-4	L	M W F	ARR	DRENTEN
622.02	2-4	L	M W F	ARR	PETERSON
622.03	2-4	L	M W F	ARR	HUNT
623	3	O	M W F	11	UNDERWOOD
624	3	O	M W F	2	MULLINS
625	3	L	M W F	1	GAUMER
626	5	L	M W F	11	GAUMER
		L	M W F	2	GAUMER
627	3	L	M W F	8	GAUMER
		L	M W F	8	GAUMER
631	3	L	M W F	9	SEIFERT
633	3	L	M W F	11	SEIFERT
		L	M W F	7	MULLINS
641	5	L	M T W R	10	MULLINS
		L	M T W R	10	MULLINS
642	3	L	M T W R	9	MAGUIRE
		L	M T W R	9	MAGUIRE
643	3-5	L	M W F	11	GOULD
693.01	3-5	L	M W F	ARR	MAGUIRE
693.02	3-5	L	M W F	ARR	DRENTEN
693.03	3-5	L	M W F	ARR	PETERSON
693.04	3-5	L	M W F	ARR	NORTON
693.05	3-5	L	M W F	ARR	SEIFERT
783	3-5	L	M W F	ARR	HUDSON
801A	3-5	L	M W F	7	RARICK
802C	3-5	L	M W F	1	PETERSON
803A	3-5	L	M W F	9	UNDERWOOD
803B	3-5	L	M W F	1	HOLSINGER
813	5	L	M W F	1	GOULD

## Landscape Architecture

No.	Crd't.	Sec.	Day	Time	Instructor
AUTUMN QUARTER					
221	3	L	T	10	TOBEY
		L	T R	8	TOBEY
611	6	L	T	1	FIFE
		L	M T W R F	2	FIFE
621	4	L	T	11	FIFE
		L	M T W F	9	FIFE
661	3	L	R	11	FIFE
		L	M W F	11	FIFE
		L	M W F	11	FIFE
693	2-10	C	M W F	10	TOBEY
711	6	L	R	1	TOBEY
		L	M T W R F	2	TOBEY
721	4	L	R	9	TOBEY
		L	M T W F	9	TOBEY
750	3	L	M W F	10	TOBEY
WINTER QUARTER					
222	3	L	T	10	TOBEY
		L	T R	8	TOBEY
300	3	L	M W F	9	TOBEY
612	6	L	T	1	FIFE
		L	M T W R F	2	FIFE
622	4	L	T	11	FIFE
		L	M T W F	9	FIFE
662	3	L	R	11	FIFE
		L	M W F	11	FIFE
		L	M W F	11	FIFE
693	2-10	I	M W F	10	TOBEY
712	6	L	R	1	TOBEY

## SPRING QUARTER

101	3	L	M F	4	HUDSON
		L	M F	4	HUDSON
		L	M F	4	HUDSON
102	3	D	M W F	1	PETERSON
201	3	L	M W F	8	HUDSON
		L	M W F	8	HUDSON
		L	M W F	8	BRIAN
		L	M W F	8	BRIAN
		L	M W F	8	BRIAN
202	3	L	M T R	3	BRIAN
		L	M T R	3	BRIAN
		L	M T R	1	HUDSON
		L	M T R	1	HUDSON
		L	M W F	2	HUDSON
		L	M W F	1	HUDSON
		L	M W F	2	HUDSON
203	3	L	M W F	3	BRIAN
		L	M W F	8	BRIAN
204	3	L	M W F	10	PETERSON
		L	M W F	10	PETERSON
		L	M W F	1	PETERSON
		L	M W F	1	PETERSON
		L	M W F	3	PETERSON

Landscape Architecture (Cont'd)

722	4	B	MTWRF	2	- 5	TOBEY TOBEY
		L	R	9		
		B	MTW F	10	-12	
SPRING QUARTER						
200	5	L	M W F	3		TOBEY
		B	T R	1	- 5	TOBEY
223	3	L	T	10		TOBEY
		B	T R	8	-11	TOBEY
613	6	L	T	1		FIFE
		B	MTWRF	2	- 5	FIFE
623	4	L	T	11		FIFE
		B	MTW F	9	-11	FIFE
663	3	L	R	11		FIFE
		B	M W F	11		FIFE
			ARR	3	HRS	
693	2-10	I	ARR			
713	6	L	R	1		
		B	MTWRF	2	- 5	TOBEY
723	4	L	R	9		TOBEY
		B	MTW F	10	-12	

Latin

No.	Crd't.	Sec.	Day	Time	Instructor
SUMMER QUARTER					
104	5	R	MTWRF	9	
112	5,10	D	MTWRF	8	GAICHAS
	15	D	MTWRF	8	GAICHAS
	5,10	D	MTWRF	1	GAICHAS
	15	D	MTWRF	1	GAICHAS
615	3	DR	T R	1030-12	
802	4	S	M W F	10	ABBOTT
820	3	DR	M W F	11	ABBOTT
851	4	DR	M W F	9	ABBOTT
SUMMER 1ST TERM					
603	3	R	MTWRF	10	
AUTUMN QUARTER					
50	5	R	MTWRF	8	
101	5	R	MTWRF	8	
		R	MTWRF	1	
103	5	R	MTWRF	8	
104	5	R	MTWRF	9	
200	5	DR	MTWRF	10	BABCOCK
300	3	DR	M W F	12	
303	3	DR	M W F	9	
616	3	DR	M W F	2	DAVIS
693	1- 6	CDR	R	7 - 9 P	SCHLAM
800	3	DR	T R	9	FORBES
810	4	S	R	10 -12	MORFORD
850	4	DR	M W F	10	ABBOTT
995	5	S	T	2 - 5	ABBOTT
999		I	ARR		
WINTER QUARTER					
102	5	R	MTWRF	8	
		R	MTWRF	1	
103	5	R	MTWRF	8	
104	5	R	MTWRF	12	
201	5	DR	MTWRF	11	DAVIS
301	3	DR	M W F	2	DILKE
312	3	DR	T R	12	
615	3	DR	M W F	12	ABBOTT
625	3	DR	M W F	3	FORBES
811	4	S	R	10 -12	DILKE
851	4	DR	M W F	10	SCHLAM
855	3	DR	T	10 -12	BABCOCK
996	5	S	T	2 - 5	ABBOTT
999		I	ARR		
SPRING QUARTER					
103	5	R	MTWRF	8	
		R	MTWRF	1	
104	5	R	MTWRF	8	
202	5	DR	MTWRF	11	ABBOTT
302	3	DR	M W F	9	DAVIS
612	3	DR	M	10 -12	SCHLAM
617	3	DR	M W F	11	
699	3	S	R	9 -11	BARMANN
807	4	S	M	10 -12	SCHLAM

827	3	DR	M W F	9	ABBOTT
852	4	DR	T R	11 -1230	DILKE
993	1- 4	C	W	3 - 5	DILKE
999		I	ARR		

Law

No.	Crd't.	Sec.	Day	Time	Instructor
SUMMER QUARTER					
703	2	K		ARR	
SUMMER 1ST TERM					
612	3	D		ARR	STANGER
702	4	D		ARR	NORDSTROM
707	3	D		ARR	WILLS
SUMMER 2ND TERM					
611	3	D		ARR	HERMAN
626	3	D		ARR	STANGER
712	3	D		ARR	CLOVIS
AUTUMN QUARTER					
500		D		ARR	RUTLEDGE
501		K		ARR	
503	3	D	MTW	125- 220	CALDWELL
504	2	D	MT	1020-1115	CARPENTER
		D	MT	1020-1115	MILLER
505	3	D	WRF	235- 330	CALLAHAN
507	3	D	RFS	1020-1115	FINK
509	4	D	TWRF	8 - 855	HERMAN
		D	MTWR	8 - 855	
602	4	D	MTWR	1020-1115	KELMAN
		D	ARR		POLLACK
603	3	D	MTW	910-1005	SLAGLE
604	3	D	WRF	125- 220	WILLS
605	3	D	RFS	910-1005	CLOVIS
606	4	D	MTWR	235- 330	RASKIND
607	4	D	MTWR	1130-1225	SCHWARZ
608	4	D	MTWR	1020-1115	LYNN
		D	ARR		
609	3	D	MTW	1130-1225	NORDSTROM
613	4	D	WRFS	8 - 855	BERNSTEIN
616	3	D	RFS	1020-1115	ROSE
618	3	D	RFS	910-1005	CALLAHAN
622	3	D	MTW	8 - 855	GLANDER
626	3	D	MTW	910-1005	STANGER
700		B		ARR	HERMAN
703	2	K		ARR	
		K	RF	125- 220	CARPENTER
704	3	B	WRF	1130-1225	
710	3	D	TWR	225- 330	FINK
712	3	D	MTW	910-1005	CLOVIS
713	2	B		ARR	HERMAN
716	3	D	MTW	125- 220	DAY
720	3	D	MTW	8 - 855	
723	3	D	MTW	1020-1115	DAY
793	1- 6	I		ARR	
794	3	D		ARR	
795.01	3	S	M F	330- 5	CHRISTENSE
795.03	3	S	M F	330- 5	ROSE
795.04	3	S	M F	330- 5	LAWRENCE
796.05	3	S		ARR	ROSENN
796.08	3	D	MT	125- 220	SLAGLE
796.17	3	D	MT	910-1005	RASKIND
796.18	3	D		ARR	BURKE
796.24	3	D	T R	330- 5	CALDWELL
796.26	3	D	T R	330- 5	KELMAN
796.28	3	D		ARR	LYNN
796.29	3	D	T R	330- 5	MILLER
796.30	3	D	MT	125- 220	SIMMONS
WINTER QUARTER					
502		B		ARR	HERMAN
503	3	D		ARR	CALDWELL
504	3	D		ARR	CARPENTER
505	3	D		ARR	R. LYNN
507	3	D		ARR	FINK
510	3	D		ARR	ROSENN
600		B		ARR	RUTLEDGE
601	4	D		ARR	CALLAHAN
603	3	D		ARR	
605	3	D		ARR	
606	4	D		ARR	ROSE
607	4	D		ARR	SCHWARZ
		D		ARR	CLOVIS
610	3	D		ARR	NORDSTROM
611	3	D		ARR	HERMAN



614	3	D	ARR	BURKE
615	3	D	ARR	ROSENN
616	3	D	ARR	
622	3	D	ARR	A.LYNN
623	3	D	ARR	DAY
703	2	K	ARR	
707	3	D	ARR	WILLS
708	3	D	ARR	BERNSTEIN
711	3	D	ARR	R.LYNN
712	3	D	ARR	FINK
715	3	D	ARR	RASKIND
722	3	S	ARR	KELMAN
725	3	S	ARR	SIMMONS
794	3	S	ARR	CARPENTER
795.01	3	S	ARR	CHRISTENSE
795.02	3	S	ARR	
795.04	3	S	ARR	GLANDER
795.05	3	S	ARR	DAY
796.06	3	S	ARR	POLLACK
796.18	3	S	ARR	STANGER
796.20	3	S	ARR	KELMAN
796.22	3	S	ARR	MILLER
796.23	3	S	ARR	CALDWELL
796.27	3	S	ARR	

SPRING QUARTER

502		B	ARR	HERMAN
503	3	D	ARR	CALDWELL
504	3	D	ARR	CARPENTER
506	3	D	ARR	CALLAHAN
507	3	D	ARR	FINK
510	3	D	ARR	ROSEN
600	3	B	ARR	HERMAN
603	3	D	ARR	CALLAHAN
604	3	D	ARR	WILLIS
607	3	D	ARR	CLOVIS
609	3	D	ARR	ROSE
611	3	D	ARR	HERMAN
617	3	D	ARR	GLANDER
619	3	D	ARR	BURKE
620	3	D	ARR	POLLACK
621	3	D	ARR	SIMMONS
624	3	D	ARR	RASKIND
625	3	D	ARR	RASKIND
627	3	D	ARR	SIMMONS
700		B	ARR	HERMAN
702	4	B	ARR	NORDSTROM
703	2	K	ARR	
704	1	B	ARR	SLAGLE
705	3	D	ARR	CALDWELL
706	4	D	ARR	MILLER
709	3	D	ARR	CLOVIS
713	2	B	ARR	HERMAN
714	2	D	ARR	
717	3	D	ARR	DAY
718	3	D	ARR	DAY
719	4	D	ARR	SLAGLE
720	3	D	ARR	BERNSTEIN
721	3	D	ARR	FINK
794	3	D	ARR	CARPENTER
795.01	3	S	ARR	
795.03	3	S	ARR	PLATT
795.04	3	S	ARR	HERMAN
796.02	3	S	ARR	ROSENN
796.03	3	S	ARR	KELMAN
796.04	3	S	ARR	BERNSTEIN
796.20	3	S	ARR	BURKE
796.31	3	S	ARR	SIMMONS
796.32	3	S	ARR	ROSE

Linguistics

No.	Crd't.	Sec.	Day	Time	Instructor
SUMMER QUARTER					
601	5	L	MTWRF	10	LONDON
693	1- 5	S	ARR		
795	5	L	ARR		LONDON
999		I	ARR		
AUTUMN QUARTER					
201	5	L	MTWRF	9	
		L	MTWRF	10	
600	3	LR	MTWRF	11	LEHISTE
601	5	L	MTWRF	2	FILLMORE
672	5	L	MTWRF	2	DRACHMAN
673	5	L	MTWRF	3	LANGENDOEN

679	5	L	MTWRF	3	CALLAGHAN
693	1- 5	S	ARR		
694	1- 5	S	ARR		
695	5	L	MTWRF	11	
795	3- 5	S	M W	4 - 530	LANGENDOEN
803	5	L	ARR		
812	5	L	MTWRF	3	FILLMORE
822	5	S	T R	4 - 6	STAMPE
999		I	ARR		

WINTER QUARTER

201	5	L	MTWRF	9	
		L 1	MTWRF	10	LONDON
		L	MTWRF	10	
601	5	L	MTWRF	11	FILLMORE
602	5	L	MTWRF	3	LANGENDOEN
611	5	L	MTWRF	11	LEHISTE
671	5	L	MTWRF	3	STAMPE
672	5	LR	ARR		
685	5	L	MTWRF	11	LONDON
693	1- 5	S	ARR		
694	1- 5	S	ARR		
795	3- 5	S	M W	4 - 530	DRACHMAN
801	5	L	MTWRF	2	CALLAGHAN
803	5	L	ARR		
821	5	S	T R	4 - 530	STAMPE
999	1- 5	I	ARR		

SPRING QUARTER

201	5	L	MTWRF	9	
		L	MTWRF	10	
603	5	L	MTWRF	11	
650	5	LR	MTWRF	2	CALLAGHAN
672	5	LR	ARR		
681	5	L	MTWRF	2	LANGENDOEN
693	1- 5	S	ARR		
694	1- 5	S	ARR		
795	3- 5	S	M W	4 - 530	
802	5	L	MTWRF	3	CALLAGHAN
803	5	L	ARR		
811	5	L	MTWRF	3	LANGENDOEN
820	5	S	T R	4 - 530	
999	1- 5	I	ARR		

Mathematics

No.	Crd't.	Sec.	Day	Time	Instructor
SUMMER QUARTER					
101	5	D	MTWRF	8	
		D	MTWRF	12	
105	3	LR	M W F	9	
116	5	D	MTWRF	12	
		D	MTWRF	1	
117	5	D	MTWRF	2	
121	5	D	MTWRF	12	
122	5	D	MTWRF	12	
150	5	D	MTWRF	12	
		D	MTWRF	1	
151	5	D	MTWRF	12	
		D	MTWRF	1	
152	5	D	MTWRF	11	
153	5	D	MTWRF	12	
254	5	D	MTWRF	12	
255	5	LR	MTWRF	1	
294	2- 5	D	ARR		
504	5	L	M W F	11	
		R	T R	11	
		R	T R	12	
550	5	D	MTWRF	9	
551	5	D	MTWRF	9	
552	5	D	MTWRF	10	
571	5	S	MTWRF	11	
594	2- 5	S	ARR		
611	5	S10	MTWRF	740- 840	
612	5	S10	MTWRF	1055-1155	
613	5	S10	MTWRF	845- 945	
614	5	S10	MTWRF	950-1050	
622	3	D	M W F	10	
629	1- 5	B	ARR		
680	5	S	ARR		
693	3	I10	M W F	1055-1155	
	1- 5	I10	ARR		
694	5	D10	MTWRF	950-1050	
	2- 5	D10	ARR		
750	5	S10	MTWRF	12	
755	5	S10	MTWRF	1	
794	2- 5	D	ARR		

Mathematics (Cont'd)

827	3	S	M W F	10	
865	2- 5	S	ARR		
926	3	I	ARR		
949	2- 5	I	ARR		
950	2- 5	I	ARR		
951	2- 5	I	ARR		
954	2- 5	I	ARR		
957	2- 5	I	ARR		
961	2- 5	I	ARR		
975	5	I	ARR		
978	5	I	ARR		
979	5	I	ARR		
980	5	I	ARR		
981	2- 5	I	ARR		
982	5	I	ARR		
983	2- 5	I	ARR		
984	5	I	ARR		
985	2- 5	I	ARR		
986	2- 5	I	ARR		
987	2- 5	I	ARR		
988	2- 5	I	ARR		
989	2- 5	I	ARR		
990	2- 5	I	ARR		
996	2- 5	I	ARR		
997	2- 5	I	ARR		
998	2- 5	I	ARR		
999		I	ARR		
SUMMER 1ST TERM					
520	5	LR	MTWRF	9	-11
SUMMER 2ND TERM					
521	5	LR	MTWRF	9	-11
AUTUMN QUARTER					
101	5	L	M W F	11	
		R	T R	11	
		R	T R	12	
		L	M W F	1	
		R	T R	12	
		R	T R	1	
		L	M W F	6	
		R	T R	5	
		R	T R	6	
		L	M W F	7	
		R	T R	6	
		R	T R	7	
		D	MTWRF	8	
		D	MTWRF	12	
		D	MTWRF	5	
108	5	D	MTWRF	2	
116	5	D	MTWRF	10	
		D	MTWRF	12	
		D	MTWRF	4	
		D	MTWRF	6	
117	5	LR	MTWRF	12	
		LR	MTWRF	4	
121	5	L	M W F	12	
		R	T R	12	
		R	T R	1	
		L	M W F	5	
		R	T R	4	
		R	T R	5	
122	5	L	M W F	8	
		R	T R	8	
		R	T R	9	
123	5	D	MTWRF	8	
150	5	D	MTWRF	8	
		D	MTWRF	12	
		D	MTWRF	2	
		D	MTWRF	5	
		D	M W	7	
151	5	D	MTWRF	9	- 915P
		D	MTWRF	3	
152	5	L	M W F	1	
		R	T R	1	
		L	M W F	3	
		R	T R	3	
153	5	D	MTWRF	10	
		D	MTWRF	12	
		D	T R	7	- 915P
190	5	D	MTWRF	12	
205	5	L	MTWRF	10	
221	5	L	MTWRF	11	
254	5	D	MTWRF	12	
		D	MTWRF	3	
		D	MTWRF	1	
255	5	L	M W F	10	
		R	T R	10	
		R	T R	12	
264	5	D	MTWRF	10	
290	5	D	MTWRF	10	
294	2- 5	D	ARR		

	2	D	T R	3	
	5	D	MTWRF	11	
		D	MTWRF	12	
		D	MTWRF	2	
425	5	L	M W F	10	
		R	T	9	
		R	T	10	
		R	R	9	
		R	R	10	
501	4	D	MTWR	1	
504	5	L	M W F	2	
		L	T R	2	
		L	T R	3	
505	5	D	MTWRF	9	
507	5	D	MTWRF	11	
512	3	D	M W F	10	
513	3	D	M W F	12	
520	5	L	M W F	10	
		R	T R	11	
528	3	D	M W F	2	
550	5	D	MTWRF	2	
551	5	D	MTWRF	11	
556	5	D	MTWRF	1	
573	5	D	MTWRF	11	
570	5	D	MTWRF	11	
590	5	D	MTWRF	11	
593	2- 5	D	ARR	ARR	
594	2- 5	D	ARR	ARR	
601	5	D	MTWRF	9	
621	3	D	M W F	1	
629	1- 5		ARR	ARR	
651	5	D	M W F	2	
		R	T R	1	
		R	T R	2	
		R	T R	2	
662	5	D	ARR	ARR	
670	5	L	M W F	11	
		L	T R	11	
		L	T R	1	
674	5	D	T R	1 - 3	
			ARR	1 HR	
680	5	D	ARR	ARR	
693	1- 5	I	ARR	ARR	
694	2- 5	I	ARR	ARR	
		D	M W F	3	
		D	T R	1030-12	
		D	MTWRF	11	
		D	MTWRF	12	
		D	M W F	12	
		D	MTWRF	4	
		D	M W F	3	
		D	M W F	2	
		D	M W F	3	
702	3	D	ARR	ARR	
720	3	D	ARR	ARR	
722	3	D	ARR	ARR	
726	3	D	M W F	1	
728	3	D	ARR	ARR	
741	3	D	M W F	4 - 530	
749	5	D	ARR	ARR	
750	5	D	M W F	2	
		R	T R	2	
753	5	D	MTWRF	10	
755	5	L	M W F	9	
		R	T R	9	
763	3	D	ARR	ARR	
767	5	D	MTWRF	1	
770	5	D	M W F	11	
		R	T R	11	
			ARR	ARR	
775	5	D	MTWRF	9	
779	5	D	MTWRF	1	
780	5	D	MTWRF	1	
794	2- 5	D	ARR	ARR	
		D	T R	3	
		D	MTWRF	9	
		D	MTWRF	2	
		D	M W F	2	
830	3	D	ARR	ARR	
847	5	D	ARR	ARR	
851	3	D	ARR	ARR	
857	3	D	M W F	3	
860	3	D	ARR	ARR	
863	3	D	ARR	ARR	
865	2- 5	I	ARR	ARR	
873	5	D	MTWR	9	
		M	MTWR	11	
876	5	I	ARR	ARR	
931	3	D	T R	3 - 430	
933	3	D	ARR	ARR	
949	2- 5	I	ARR	ARR	
950	2- 5	I	ARR	ARR	
951	2- 5	I	ARR	ARR	
954	2- 5	I	ARR	ARR	
957	2- 5	I	ARR	ARR	
959	4	D	MTWR	1	
961	2- 5	I	ARR	ARR	
		I	M W F	1	
970	5	D	M W F	3	
		R	T R	10	
		R	T R	3	

ROSS

ROSS  
DROBOT

SALTZER



973	5	D	ARR	
975	5	I	ARR	
978	5	I	ARR	
979	5	I	ARR	
980	3	I	ARR	
981	2-5	I	ARR	
982	5	I	ARR	
983	5	I	TW	3 - 5
			R	3
984	5	I	MTWRF	2
985	2-5	I	ARR	
986	2-5	I	ARR	
987	2-5	I	ARR	
988	2-5	I	ARR	
989	2-5	I	ARR	
990	2-5	I	ARR	
	2	I	T R	4
996	2-5	I	ARR	
997	2-5	I	ARR	
	2	I	M W	10
998	2-5	I	ARR	
999		I	ARR	
WINTER QUARTER				
105	3	L	M W	12
		R	R	12
		R	F	12
		L	M W	2
		R	R	2
		R	F	2
109	5	D	MTWRF	1
116	5	D	MTWRF	8
		D	MTWRF	3
		D	MTWRF	6
117	5	D	MTWRF	10
		D	MTWRF	1
		D	MTWRF	6
121	5	L	M W F	8
		L	M W F	10
		R	T R	8
122	5	L	M W F	9
		L	M W F	12
		R	T R	9
		R	T R	10
123	5	D	MTWRF	8
150	5	D	MTWRF	11
		D	MTWRF	2
		D	MTWRF	4
151	5	D	MTWRF	9
		D	MTWRF	12
		D	M W	5 - 915P
152	5	D	MTWRF	9
		D	MTWRF	3
153	5	D	MTWRF	10
		D	MTWRF	12
191	5	D	MTWRF	1
205	5	L	M W F	2
		R	T R	2
		R	T R	3
254	5	D	MTWRF	12
		D	MTWRF	3
		D	T R	7 - 915P
255	5	L	M W F	3
		R	T R	3
		R	T R	12
265	5	R	MTWRF	10
291	5	D	MTWRF	10
294	2-5	D	ARR	
	5	D	MTWRF	10
		D	MTWRF	11
		D	MTWRF	2
425	5	L	M W F	10
		R	T R	10
		R	T R	12
426	5	L	M W F	10
		R	T R	10
		R	T R	12
502	4	D	MTWR	1
504	5	L	M W F	11
		R	T R	11
		R	T R	12
505	5	D	MTWRF	1
		D	MTWRF	3
506	5	D	MTWRF	9
507	5	D	MTWRF	11
512	3	D	M W F	10
513	3	D	M W F	1
514	3	D	M W F	9
521	5	L	M W F	10
		R	T R	10
		R	T R	11
529	3	D	M W F	2
545	5	D	MTWRF	1
550	5	D	MTWRF	2
551	5	D	MTWRF	2
552	5	D	MTWRF	10

570	5	D	MTWRF	11
571	5	L	M W F	11
		R	T R	11
		D	MTWRF	11
573	5	D	MTWRF	1
591	5	D	MTWRF	11
593	2-5	D	MTWRF	ARR
	5	D	MTWRF	12
594	2-5	D	MTWRF	ARR
602	5	D	MTWRF	9
629	1-5	D	MTWRF	ARR
652	5	D	M W F	2
		R	T R	1
		R	T R	2
671	5	L	M W F	11
		R	T R	11
		R	T R	1
		D	MTWRF	11
693	1-5	D	MTWRF	ARR
694	2-5	D	MTWRF	ARR
	5	D	MTWRF	12
		D	MTWRF	1
703	3	D	M W F	2
705	3	D	M W F	ARR
721	3	D	M W F	3
729	3	D	M W F	ARR
742	3	D	M W F	4 - 530
751	5	D	M W F	2
		R	T R	2
754	5	D	MTWRF	10
756	5	D	M W F	9
		R	T R	9
764	3	D	M W F	9
768	5	D	MTWRF	1
771	5	D	M W F	11
		R	T R	11
776	5	D	MTWRF	ARR
779	5	D	MTWRF	9
781	5	D	MTWRF	1
794	2-5	D	MTWRF	ARR
	5	D	MTWRF	9
		D	MTWRF	11
		D	MTWRF	2
		D	MTWRF	3
		D	T R	1 - 3
824	3	D	MTWRF	ARR
827	3	D	MTWRF	ARR
831	3	D	M W F	2
844	5	D	MTWRF	ARR
846	2-5	D	MTWRF	ARR
	5	D	MTWRF	10
848	5	D	MTWRF	ARR
852	3	D	MTWRF	ARR
854	5	D	MTWRF	ARR
858	3	D	M W F	3
861	3	S	MTWRF	ARR
864	3	S	MTWRF	ARR
874	5	D	MTWRF	9
876	5	S	MTWRF	ARR
877	5	S	MTWRF	ARR
932	3	D	T R	3 - 430
934	3	D	MTWRF	ARR
935	3	S	MTWRF	ARR
937	3	S	MTWRF	ARR
949	2-5	S	MTWRF	ARR
950	2-5	S	MTWRF	ARR
951	2-5	S	MTWRF	ARR
954	2-5	S	MTWRF	ARR
957	2-5	S	MTWRF	ARR
960	4	D	MTWR	2
961	2-5	S	MTWRF	ARR
	3	S	M W F	1
971	5	D	MTWRF	3
974	5	D	MTWRF	9
975	5	I	MTWRF	ARR
978	5	I	MTWRF	ARR
979	5	I	MTWRF	ARR
980	5	I	MTWRF	ARR
981	2-5	I	MTWRF	ARR
982	5	I	MTWRF	ARR
983	2-5	I	MTWRF	ARR
	5	I	MTWRF	3
	5	I	MTWRF	2
984	5	I	MTWRF	ARR
985	2-5	I	MTWRF	ARR
986	2-5	I	MTWRF	ARR
987	2-5	I	MTWRF	ARR
988	2-5	I	MTWRF	ARR
989	2-5	I	MTWRF	ARR
990	2-5	I	MTWRF	ARR
996	2-5	I	MTWRF	ARR
997	3	I	M W F	10
998	2-5	I	MTWRF	ARR
999		I	MTWRF	ARR
SPRING QUARTER				
101	5	D	MTWRF	8
		D	MTWRF	12
		D	MTWRF	2

ROSS

ZILBER

Mathematics (Cont'd)

105	3	L	M W	12
		R	R	12
		F	F	12
		L	M W	2
		R	R	2
		F	F	2
110	5	D	MTWRF	1
116	5	D	MTWRF	8
		D	MTWRF	1
117	5	D	MTWRF	9
		D	MTWRF	12
		D	MTWRF	4
121	5	L	M W F	3
		R	T R	3
		R	T R	4
122	5	L	MT R	1
		F	W F	1
		F	W F	3
123	5	L	M W F	9
		L	M W F	12
		R	T R	9
		R	T R	12
125	5	D	MTWRF	3
150	5	D	MTWRF	9
		D	MTWRF	3
151	5	D	MTWRF	11
		D	MTWRF	3
152	5	D	MTWRF	10
		D	MTWRF	1
153	5	D	MTWRF	10
		D	MTWRF	12
163	5	D	MTWRF	10
192	5	D	MTWRF	10
		D	MTWRF	12
254	5	D	MTWRF	12
		D	MTWRF	3
255	5	L	M W F	2
		R	T R	2
		R	T R	12
292	5	D	MTWRF	12
294	2- 5	D	ARR	
426	5	L	MTW F	10
		R	R	10
503	4	D	MTWR	1
506	5	D	MTWRF	3
514	3	D	M W F	1
522	3	L	M W F	10
546	5	D	MTWRF	1
550	5	D	MTWRF	9
551	5	D	MTWRF	2
553	5	D	ARR	
556	5	D	MTWRF	1
557	5	D	MTWRF	1
560	5	D	MTWRF	2
570	5	D	MTWRF	11
571	5	D	MTWRF	11
574	5	D	MTWRF	1
593	2- 5	D	ARR	
		D	MTWRF	10
		D	MTWRF	11
		D	MTWRF	2
594	2- 5	D	ARR	
603	3	D	M W F	10
608	5	D	MTWRF	12
620	3	D	MTWRF	1
621	3	D	M W F	9
629	1- 5	D	ARR	
653	5	D	M W F	2
		R	T R	1
		R	T R	2
672	5	L	M W F	11
		R	T R	11
		R	T R	1
693	1- 5	I	ARR	
694	2- 5	D	MTWRF	9
		D	MTWRF	11
		D	MTWRF	2
		D	MTWRF	3
		D	ARR	
701	5	D	MTWRF	9
706	5	D	MTWRF	2
725	3	D	ARR	
726	3	D	M W F	2
743	3	D	M W F	4
752	5	D	M W F	2
		R	T R	2
772	5	D	M W F	11
		R	T R	11
777	5	D	ARR	
779	5	D	MTWRF	9
782	5	D	MTWRF	1
794	2- 5	D	MTWRF	9
		D	MTWRF	11

		D	MTWRF	2
		D	MTWRF	3
822	3	D	ARR	
825	3	D	M W F	1
826	3	D	ARR	
828	3	D	M W F	2
832	3	D	M W F	1
855	5	D	MTWRF	2
859	3	D	M W F	3
862	3	D	ARR	
866	2- 5	D	ARR	
867	5	D	ARR	
869	2- 5	I	ARR	
877	5	I	ARR	
925	3	I	ARR	
936	3	I	ARR	
938	3	I	ARR	
949	2- 5	I	ARR	
950	2- 5	I	ARR	
951	2- 5	I	ARR	
954	2- 5	I	ARR	
957	2- 5	I	ARR	
961	2- 5	I	ARR	
972	5	D	MTWRF	10
975	5	I	ARR	
978	5	I	ARR	
979	5	I	ARR	
980	5	I	ARR	
981	2- 5	I	ARR	
982	5	I	ARR	
983	2- 5	I	ARR	
984	5	I	ARR	
985	2- 5	I	ARR	
986	2- 5	I	ARR	
987	2- 5	I	ARR	
988	2- 5	I	ARR	
989	2- 5	I	ARR	
990	2- 5	I	ARR	
996	2- 5	I	ARR	
997	2- 5	I	ARR	
998	2- 5	I	ARR	
999		I	ARR	

Mechanical Engineering

No.	Crd't.	Sec.	Day	Time	Instructor
SUMMER QUARTER					
794	3			ARR	
999		I		ARR	
SUMMER 1ST TERM					
794	3	L		ARR	
999		I		ARR	
SUMMER 2ND TERM					
794	3	L		ARR	
999		I		ARR	
AUTUMN QUARTER					
501	5	L	MTWRF	9	
		L	MTWRF	1	
503	5	L	MTWRF	11	
505	1	B	M	2	- 5
		B	F	2	- 5
510	4	L	M WRF	10	
		L	MTW F	2	
511	5	L	MTWRF	2	
520	3	L	M W F	10	
		L	M W F	2	
551	5	L	MTWRF	3	
552	4	L	M WRF	8	
		L	MTW F	1	
588	1	L	M	4	
621	3	L	M W F	3	
625	3	L	M W F	9	
640	3	L	M W F	9	
661	4	L	M WRF	8	
		L	MTW F	1	
663	4	L	MTW F	11	
670	3	L	T	3	
		L	R	9	
		B	T	8	-12
		B	R	1	- 5
693	2-10	CAD		ARR	
720	3	L	T R F	4	
741	4	L	MTW F	1	
761	3	DBR	M W F	8	-10
MARCO					
BUXTON					
ENGELMAN					
SEPSY					



763	3	DBR	M W F	2 - 4	
782	3	DBR	M W F	10 -12	
794	3-5	CRD	T R	10 -12	
801	3	L	ARR		
809	3	L	T R	330- 445	
812	5	L	M W F	2 - 315	
822	5	CBD	MTWRF	1	BRIDGE
825	5	CBD	ARR		
842	5	CBD	ARR		BUXTON
851	3	L	T R	8 - 915	SEPSY
860	3	L	T R	2 - 315	MCLARNAN
870	4	L	M W F	10	STARKEY
		B	ARR		DOERFLIN
880	3	L	M W	5 - 615	DOERFLIN
881	3	L	M W	330- 445	BRIDGE
888	2	S	T R	10 -12	
999		I	ARR		

WINTER QUARTER

500	5	L	MTWRF	10	
		L	MTWRF	2	
501	5	L	MTWRF	2	
502	5	L	MTWRF	11	
		L	MTWRF	1	
510	4	L	MT RF	10	
520	3	L	M W F	3	
550	5	L	MTWRF	9	
552	4	L	MTW F	1	
624	3	L	M W F	11	
		L	M W F	2	
661	4	L	MT RF	8	
662	4	L	MT RF	11	
		L	MTW F	2	
670	3	L	W	12	
		B	R	1 - 5	
693	2-10	CRD	ARR		
721	3	L	M W F	11	ENGELMAN
724	3	L	M W F	9	
742	3	L	M W F	1	SEPSY
761	3	DB	M W F	3 - 5	
762	3	DB	M W F	8 -10	
		DB	M W F	1 - 3	
770	4	L	M W F	8	DOERFLIN
		B	T	10 -12	
		B	R	10 -12	
771	4	L	M W F	10	
		B	T	1 - 3	
		B	R	8 -10	
		L	M W F	3	
		B	M	8 -10	
		B	T	8 -10	
		B	T	3 - 5	
		B	W	3 - 5	
781	3	CRD	T R	8 -10	
		CBD	T R	1 - 3	
794	3-5	L	ARR		
802	3	L	M W	330- 445	
807	3	L	T R	2 - 315	
810	3	L	M W	2 - 315	HAN
820	3	L	ARR		ENGELMAN
822		CBD	ARR		
823	3	L	ARR		BUXTON
825		CRD	ARR		BUXTON
840	3	L	ARR		SEPSY
842		CRD	ARR		SEPSY
850	3	L	T R	330- 445	STARKEY
999		I	ARR		

SPRING QUARTER

500	5	L	MTWRF	11	
502	5	L	MTWRF	1	
503	5	L	MTWRF	10	
		L	MTWRF	2	
511	5	L	MTWRF	9	
		L	MTWRF	3	
550	5	L	MTWRF	11	
551	5	L	MTWRF	9	
		L	MTWRF	3	
613	3	L	M W F	4	
621	3	L	M W F	8	
		L	M W F	1	
624	3	L	M W F	2	
640	3	L	M W F	8	
		L	M W F	1	
662	4	L	M WRF	10	
663	4	L	MT RF	11	
		L	M WRF	2	
693	2-10	CBD	ARR		
722	3	L	M W F	10	ENGELMAN
726	3	L	M W F	8	JONES
762	3	BD	M W F	8 -10	
763	3	BD	M W F	10 -12	
		BD	M W F	2 - 4	
771	4	L	M W F	3	
		B	T	8 -10	
		B	R	3 - 5	

772	4	L	M W F	1	ODEBELIN
		B	T	10 -12	
		B	R	1 - 3	
781	3	CBD	T R	8 -10	
782	3	CRD	T R	10 -12	
		CBD	T R	2 - 4	
794	3-5	L	ARR		
803	3	L	T R	3 - 415	
811	5	L	M W F	330- 445	HAN
821	3	L	ARR		JONES
822		CBD	ARR		
824	3	L	ARR		BUXTON
825		CBD	ARR		BUXTON
830	3	L	M W	5 - 615	VELKOFF
841	3	L	ARR		SEPSY
842		CBD	ARR		SEPSY
861	3	L	M W	2 - 315	STARKEY
888	2	S	T R	1 - 3	
999		I	ARR		

Medical Diatetics

No.	Crd't.	Sec.	Day	Time	Instructor
SUMMER QUARTER					
310	6	K	MTWRF	10 -12	MCCONKEY
632	6	L	M W	1 - 3	MCCONKEY
636	3	C	ARR		WENRERG
637	3	C	ARR		SCORIE
638	3	C	ARR		BURKE
646	12	C	T R	ARR	
693	1-5	I	ARR	ARR	
AUTUMN QUARTER					
201	1	D	W	3 - 5	LEWIS
310	6	K	MTWRF	10 -12	MCCONKEY
421	6	L	M W	9	
		L	F	9 -11	PRIDEAUX
		B	T R	8 -12	PRIDEAUX
		B	T R	1 - 5	PRIDEAUX
644	10	C	T R	3 - 5	CASBFRGUE
		K	ARR		CASBFRGUE
646	12	C	T R	ARR	
693	1-5	I	ARR	ARR	
WINTER QUARTER					
422	6	L	M	9 -11	PRIDEAUX
			F	8 -10	PRIDEAUX
		B	TWR	9 -12	PRIDEAUX
521	5	L	T R	2 - 4	SEUBERT
		B	F	10 -12	SEUBERT
645	10	C	T R	3 - 5	SHARP
		K	ARR		SHARP
693	1-5	I	ARR	ARR	
SPRING QUARTER					
423	6	L	F	8 -10	MARTENEY
		K	MT	8 -12	MARTENEY
522	5	L	T R	2 - 4	SEUBERT
		B	F	2 - 4	SEUBERT
631	6	L	M W	1 - 3	MCCONKEY
		K	WR	9 -12	MCCONKEY
646	12	C	TWR	3 - 5	SHARP+SCOR
		K	ARR		SHARP+SCOR
693	1-5	I	ARR	ARR	

Medical Illustration

No.	Crd't.	Sec.	Day	Time	Instructor
AUTUMN QUARTER					
100		W 2		ARR	
693	5	B 2	MTWRF	ARR	
WINTER QUARTER					
100		W 2		ARR	

Medical Illustration (Cont'd)

693	5	B 2	MTWRF	ARR
SPRING QUARTER				
100		W 2		ARR
693	5	B 2	MTWRF	ARR

Medical Microbiology

No.	Crd't.	Sec.	Day	Time	Instructor
SUMMER QUARTER					
793.02	6,12	BS		ARR	
	18	BS		ARR	
999		I		ARR	
SUMMER 1ST TERM					
793.02	6	BS		ARR	
999		I		ARR	
SUMMER 2ND TERM					
793.02	6	BS		ARR	
999		I		ARR	
AUTUMN QUARTER					
624	6, 7	LBC		ARR	
793.03	6,12	BS		ARR	BOWMAN
	18	BS		ARR	BOWMAN
814	1	S 3		ARR	
999		I 3		ARR	
WINTER QUARTER					
625	2, 3	LBC		ARR	CRAMBLETT
754	3	L		ARR	HAMPARIAN
793.01	6,12	KB		ARR	CRAMBLETT
	18	KB		ARR	HAYNES
793.02	6,12	BC		ARR	HAMPARIAN
	18	BC		ARR	CONANT
793.03	6,12	BS		ARR	BOWMAN
	18	BS		ARR	BOWMAN
793.04	6,12	BCS		ARR	SOMERSON
	18	BCS		ARR	SOMERSON
814	1	S		ARR	
999		I		ARR	
SPRING QUARTER					
626	1	D		ARR	
755	4	LB		ARR	HAMPARIAK
764	4	LB		ARR	BOWMAN
793.01	6,12	KB		ARR	CRAMBLETT
	18	KB		ARR	CRAMBLETT
793.04	6,12	BCS		ARR	SOMERSON
	18	BCS		ARR	SOMERSON
814	1	S		ARR	
864	3	L		ARR	KAPRAL
999		I		ARR	

Medical Technology

No.	Crd't.	Sec.	Day	Time	Instructor
SUMMER QUARTER					
511	9	B		ARR	STEVNISON
515	10	K		ARR	MACPHERSON
AUTUMN QUARTER					
512	9	B		ARR	WILSON
515	10	K		ARR	MACPHERSON
WINTER QUARTER					
513	9	B		ARR	SUTTON
515	10	K		ARR	MACPHERSON

SPRING QUARTER

514	9	B	ARR	EARP
515	10	K	ARR	MACPHERSON

Medicine

No.	Crd't.	Sec.	Day	Time	Instructor
SUMMER QUARTER					
714	6	KCS		ARR	
715	6,12	KCS		ARR	
	18	KCS		ARR	
716	6	KCS		ARR	
740	6,12	KCS		ARR	
	18	KCS		ARR	
751.01	6,12	KCS		ARR	
	18	KCS		ARR	
751.02	6,12	KCS		ARR	
	18	KCS		ARR	
751.03	6,12	KCS		ARR	
	18	KCS		ARR	
751.04	6,12	KCS		ARR	
	18	KCS		ARR	
751.05	6,12	KCS		ARR	
	18	KCS		ARR	
751.06	6,12	KCS		ARR	
	18	KCS		ARR	
751.07	6,12	KCS		ARR	
	18	KCS		ARR	
751.08	6,12	KCS		ARR	
	18	KCS		ARR	
751.09	6,12	KCS		ARR	
	18	KCS		ARR	
751.10	6,12	KCS		ARR	
	18	KCS		ARR	
751.11	6,12	KCS		ARR	
	18	KCS		ARR	
793.01	1- 5	CSB		ARR	
	6,12	CSB		ARR	
	18	CSB		ARR	
793.02	1- 5	CSB		ARR	
	6,12	CSB		ARR	
	18	CSB		ARR	
793.03	1- 5	CSB		ARR	
	6,12	CSB		ARR	
	18	CSB		ARR	
793.04	1- 5	CSB		ARR	
	6,12	CSB		ARR	
	18	CSB		ARR	
793.05	1- 5	CSB		ARR	
	6,12	CSB		ARR	
	18	CSB		ARR	
793.06	1- 5	CSB		ARR	
	6,12	CSB		ARR	
	18	CSB		ARR	
793.07	1- 5	CSB		ARR	
	6,12	CSB		ARR	
	18	CSB		ARR	
793.08	1- 5	CSB		ARR	
	6,12	CSB		ARR	
	18	CSB		ARR	
793.09	1- 5	CSB		ARR	
	6,12	CSB		ARR	
	18	CSB		ARR	
793.10	1- 5	CSB		ARR	
	6,12	CSB		ARR	
	18	CSB		ARR	
793.11	1- 5	CSB		ARR	
	6,12	CSB		ARR	
	18	CSB		ARR	
793.12	1- 5	CSB		ARR	
	6,12	CSB		ARR	
	18	CSB		ARR	
798	18	I		ARR	
799	18	I		ARR	
850.01	1- 3	S		ARR	
850.02	1- 3	S		ARR	
850.03	1- 3	S		ARR	
850.04	1- 3	S		ARR	
850.05	1- 3	S		ARR	
850.06	1- 3	S		ARR	
850.07	1- 3	S		ARR	
850.08	1- 3	S		ARR	
850.09	1- 3	S		ARR	
850.10	1- 3	S		ARR	
850.11	1- 3	S		ARR	



850.12	1- 3 S	ARR
850.13	1- 3 S	ARR
SUMMER 1ST TERM		
793.01	1- 5 I	ARR
793.02	1- 5 I	ARR
793.03	1- 5 I	ARR
793.04	1- 5 I	ARR
793.05	1- 5 I	ARR
793.06	1- 5 I	ARR
793.07	1- 5 I	ARR
793.08	1- 5 I	ARR
793.09	1- 5 I	ARR
793.10	1- 5 I	ARR
793.11	1- 5 I	ARR
793.12	1- 5 I	ARR
850.01	1- 3 S	ARR
850.02	1- 3 S	ARR
850.03	1- 3 S	ARR
850.04	1- 3 S	ARR
850.05	1- 3 S	ARR
850.06	1- 3 S	ARR
850.07	1- 3 S	ARR
850.08	1- 3 S	ARR
850.09	1- 3 S	ARR
850.10	1- 3 S	ARR
850.11	1- 3 S	ARR
850.12	1- 3 S	ARR
850.13	1- 3 S	ARR
999	I	ARR
SUMMER 2ND TERM		
793.01	1- 5 I	ARR
793.02	1- 5 I	ARR
793.03	1- 5 I	ARR
793.04	1- 5 I	ARR
793.05	1- 5 I	ARR
793.06	1- 5 I	ARR
793.07	1- 5 I	ARR
793.08	1- 5 I	ARR
793.09	1- 5 I	ARR
793.10	1- 5 I	ARR
793.11	1- 5 I	ARR
793.12	1- 5 I	ARR
850.01	1- 3 S	ARR
850.02	1- 3 S	ARR
850.03	1- 3 S	ARR
850.04	1- 3 S	ARR
850.05	1- 3 S	ARR
850.06	1- 3 S	ARR
850.07	1- 3 S	ARR
850.08	1- 3 S	ARR
850.09	1- 3 S	ARR
850.10	1- 3 S	ARR
850.11	1- 3 S	ARR
850.12	1- 3 S	ARR
850.13	1- 3 S	ARR
999	I	ARR
AUTUMN QUARTER		
601	4 LOS	ARR
714	6 KCS	ARR
715	6.12 KCS	ARR
	18 KCS	ARR
716	6 KCS	ARR
740	6.12 KCS	ARR
	18 KCS	ARR
751.01	6.12 KCS	ARR
	18 KCS	ARR
751.02	6.12 KCS	ARR
	18 KCS	ARR
751.03	6.12 KCS	ARR
	18 KCS	ARR
751.04	6.12 KCS	ARR
	18 KCS	ARR
751.05	6.12 KCS	ARR
	18 KCS	ARR
751.06	6.12 KCS	ARR
	18 KCS	ARR
751.07	6.12 KCS	ARR
	18 KCS	ARR
751.08	6.12 KCS	ARR
	18 KCS	ARR
751.09	6.12 KCS	ARR
	18 KCS	ARR
751.10	6.12 KCS	ARR
	18 KCS	ARR
751.11	6.12 KCS	ARR
	18 KCS	ARR
793.01	1- 5 I	ARR
	6.12 I	ARR
	18 I	ARR
793.02	1- 5 I	ARR
	6.12 I	ARR
	18 I	ARR
793.03	1- 5 I	ARR
	6-12 I	ARR

793.04	18 I	ARR
	1- 5 I	ARR
	6.12 I	ARR
	18 I	ARR
793.05	1- 5 I	ARR
	6.12 I	ARR
	18 I	ARR
793.06	1- 5 I	ARR
	6-12 I	ARR
	18 I	ARR
793.07	1- 5 I	ARR
	6-12 I	ARR
	18 I	ARR
793.08	1- 5 I	ARR
	6-12 I	ARR
	18 I	ARR
793.09	1- 5 I	ARR
	6-12 I	ARR
	18 I	ARR
793.10	1- 5 I	ARR
	6-12 I	ARR
	18 I	ARR
793.11	1- 5 I	ARR
	6-12 I	ARR
	18 I	ARR
793.12	1- 5 I	ARR
	6-12 I	ARR
	18 I	ARR
798	18 I	ARR
799	18 I	ARR
850.01	1- 3 S	ARR
850.02	1- 3 S	ARR
850.03	1- 3 S	ARR
850.04	1- 3 S	ARR
850.05	1- 3 S	ARR
850.06	1- 3 S	ARR
850.07	1- 3 S	ARR
850.08	1- 3 S	ARR
850.09	1- 3 S	ARR
850.10	1- 3 S	ARR
850.11	1- 3 S	ARR
850.12	1- 3 S	ARR
850.13	1- 3 S	ARR
999	I	ARR
WINTER QUARTER		
575	L	S 11 -12
602	3 DK	ARR
714	6 KCS	ARR
715	6.12 KCS	ARR
	18 KCS	ARR
716	6 KCS	ARR
740	6.12 KCS	ARR
	18 KCS	ARR
751.01	6.12 KCS	ARR
	18 KCS	ARR
751.02	6.12 KCS	ARR
	18 KCS	ARR
751.03	6.12 KCS	ARR
	18 KCS	ARR
751.04	6.12 KCS	ARR
	18 KCS	ARR
751.05	6.12 KCS	ARR
	18 KCS	ARR
751.06	6.12 KCS	ARR
	18 KCS	ARR
751.07	6.12 KCS	ARR
	18 KCS	ARR
751.08	6.12 KCS	ARR
	18 KCS	ARR
751.09	6.12 KCS	ARR
	18 KCS	ARR
751.10	6.12 KCS	ARR
	18 KCS	ARR
751.11	6.12 KCS	ARR
	18 KCS	ARR
793.01	1- 5 CSB	ARR
	6.12 CSB	ARR
	18 CSB	ARR
793.02	1- 5 CSB	ARR
	6.12 CSB	ARR
	18 CSB	ARR
793.03	1- 5 CSB	ARR
	6.12 CSB	ARR
	18 CSB	ARR
793.04	1- 5 CSB	ARR
	6.12 CSB	ARR
	18 CSB	ARR
793.05	1- 5 CSB	ARR
	6.12 CSB	ARR
	18 CSB	ARR
793.06	1- 5 CSB	ARR
	6.12 CSB	ARR
	18 CSB	ARR
793.07	1- 5 CSB	ARR
	6.12 CSB	ARR
	18 CSB	ARR

## Medicine (Cont'd)

793.08	1- 5 CSB	ARR
	6.12 CSB	ARR
	18 CSB	ARR
793.09	1- 5 CSB	ARR
	6.12 CSB	ARR
	18 CSB	ARR
793.10	1- 5 CSB	ARR
	6.12 CSB	ARR
	18 CSB	ARR
793.11	1- 5 CSB	ARR
	6.12 CSB	ARR
	18 CSB	ARR
793.12	1- 5 CSB	ARR
	6.12 CSB	ARR
	18 CSB	ARR
798	18 I	ARR
799	18 I	ARR
850.01	1- 3 S	ARR
850.02	1- 3 S	ARR
850.03	1- 3 S	ARR
850.04	1- 3 S	ARR
850.05	1- 3 S	ARR
850.06	1- 3 S	ARR
850.07	1- 3 S	ARR
850.08	1- 3 S	ARR
850.09	1- 3 S	ARR
850.10	1- 3 S	ARR
850.11	1- 3 S	ARR
850.12	1- 3 S	ARR
850.13	1- 3 S	ARR
999	I	ARR

## SPRING QUARTER

603	13 DK	ARR	T R	B - 9
661	2 L	ARR		
714	6 KCS	ARR		
715	6.12 KCS	ARR		
	18 KCS	ARR		
716	6 KCS	ARR		
740	6.12 KCS	ARR		
	18 KCS	ARR		
751.01	6.12 KCS	ARR		
	18 KCS	ARR		
751.02	6.12 KCS	ARR		
	18 KCS	ARR		
751.03	6.12 KCS	ARR		
	18 KCS	ARR		
751.04	6.12 KCS	ARR		
	18 KCS	ARR		
751.05	6.12 KCS	ARR		
	18 KCS	ARR		
751.06	6.12 KCS	ARR		
	18 KCS	ARR		
751.07	6.12 KCS	ARR		
	18 KCS	ARR		
751.08	6.12 KCS	ARR		
	18 KCS	ARR		
751.09	6.12 KCS	ARR		
	18 KCS	ARR		
751.10	6.12 KCS	ARR		
	18 KCS	ARR		
751.11	6.12 KCS	ARR		
	18 KCS	ARR		
770	3 D	ARR		
793.01	1- 5 CSB	ARR		
	6.12 CSB	ARR		
	18 CSB	ARR		
793.02	1- 5 CSB	ARR		
	6.12 CSB	ARR		
	18 CSB	ARR		
793.03	1- 5 CSB	ARR		
	6.12 CSB	ARR		
	18 CSB	ARR		
793.04	1- 5 CSB	ARR		
	6.12 CSB	ARR		
	18 CSB	ARR		
793.05	1- 5 CSB	ARR		
	6.12 CSB	ARR		
	18 CSB	ARR		
793.06	1- 5 CSB	ARR		
	6.12 CSB	ARR		
	18 CSB	ARR		
793.07	1- 5 CSB	ARR		
	6.12 CSB	ARR		
	18 CSB	ARR		
793.08	1- 5 CSB	ARR		
	6.12 CSB	ARR		
	18 CSB	ARR		
793.09	1- 5 CSB	ARR		
	6.12 CSB	ARR		
	18 CSB	ARR		
793.10	1- 5 CSB	ARR		
	6.12 CSB	ARR		

	18 CSB	ARR
793.11	1- 5 CSB	ARR
	6.12 CSB	ARR
	18 CSB	ARR
793.12	1- 5 CSB	ARR
	6.12 CSB	ARR
	18 CSB	ARR
798	18 I	ARR
799	18 I	ARR
850.01	1- 3 S	ARR
850.02	1- 3 S	ARR
850.03	1- 3 S	ARR
850.04	1- 3 S	ARR
850.05	1- 3 S	ARR
850.06	1- 3 S	ARR
850.07	1- 3 S	ARR
850.08	1- 3 S	ARR
850.09	1- 3 S	ARR
850.10	1- 3 S	ARR
850.11	1- 3 S	ARR
850.12	1- 3 S	ARR
850.13	1- 3 S	ARR
999	I	ARR

## Metallurgical Engineering

No. Crd't. Sec. Day Time Instructor

## SUMMER QUARTER

693	1- 6 L	ARR
884	2 C	ARR
999	I	ARR

## SUMMER 1ST TERM

693	1- 6	ARR
884	2 C	ARR
999	I	ARR

## SUMMER 2ND TERM

693	1- 6 C	ARR
884	2 C	ARR
999	I	ARR

## AUTUMN QUARTER

400	4 L	MT RF	11		RAPP
		MT RF	3		STAEHLE
410	4 L	M W F	3		
		B	3	- 5	WILLIAMS
430	3 L	M W F	9		RAPP
440	3 L	M W F	10		MEYRICK
489	5 W		ARR		WILLIAMS
500	4 L	M W F	9		RIGNFY
		I	ARR 1 HR		
530	4 L	M W F	10		BOORSTEIN
550	3 L	M W F	8		POWELL
590	2 B	T	1 - 5		PARSONS
		B	1 - 5		PARSONS
610	3 L	M W F	1		WILLIAMS
635	3 L	T R	11		
		B	ARR		FONTANA
660	3 L	M W F	11		SPRETNAK
670	3 L	M W F	9		SPRETNAK
675	3 L	M W F	2		STAEHLE
693	1- 6		ARR		
730	3 L	M W F	1		STPIERRE
750	3 L	M W F	2		
800	3 L	M W	515- 630P		
841	3 L	M W F	10		SPEISER
852	3 L	M W F	9		
881	1 S	M	4		SPEISER
884	2 C		ARR		
999	I	M	4		

## WINTER QUARTER

400	4 L	MT RF	3		BOORSTEIN
431	3 L	M W F	10		ST PIERRE
450	3 L	M W F	9		POWELL
502	3 L	M W F	1		MEYRICK
520	4 L	M W F	11		RAPP
		B	ARR		RAPP
551	3 L	M W F	10		
591	2 R	T	1 - 5		PARSONS
		B	1 - 5		PARSONS
611	3 L	M W F	2		WILLIAMS
615	3 L	M W F	10		SPRETNAK
620	3 L	M W F	9		ST PIERRE
671	3 L	M W F	11		SPRETNAK



693	1- 6	D		ARR
735	3	L	M W F	9
745	3	L	M W F	8
801	3	L	M W F	515- 630P
831	3	L	M W F	2
842	3	L	M W F	1
855	3	L	T R S	8
860	3	L	M F	3
881	1	S	M	4
884	2	C		ARR
999		I	M	4

SPRING QUARTER

400	4	L	MT RF	1
420	4	L	M W F	9
		B		ARR
451	3	L	M W F	3
490	2	B	w	1
				2 - 5
521	4	L	M W F	10
		B		1 - 4
552	3	L	M W F	9
589	2	F		ARR
592	2	B	T	1 - 5
		B	R	1 - 5
635	3	L	M W	11
		B		ARR
693	1- 6			ARR
710	3	L	M W F	3
736	3	L	M W F	9
740	3	L	M W F	3
802	3	L	M W	515- 630P
820	3	L	M W F	11
832	3	L	M W F	2
845	3	L	M W F	2
851	3	L	M W F	10
881	1	S	M	4
884	2	C		ARR
999		I	M	4

STAFHLE  
POWELL

SPEIGER  
SPEIGER  
RIGNFY

WILLIAMS

POWELL  
BOORSTEIN  
BOORSTEIN

RIGNFY  
RIGNFY  
ST PIERRF  
ST PIERRF

POWELL  
WILLIAMS  
PARSONS  
PARSONS

FONTANA  
FONTANA

WILLIAMS  
RAPP  
SPEIGER

ST PIERRF  
RAPP

SPRETNAK  
BECK

		B	M W	1 - 3
		B	T R	2 - 4
		B	M W	3 - 5
693	1- 5	I10		ARR
725	5	L10	M W F	2
		B	M W	3 - 5
860	5	L10		ARR
		B10		ARR
880	3	S10		ARR
897	1	S		ARR
999		I		ARR

WINTER QUARTER

509	5	L	M W F	11
		L	M W F	2
		B	T R	10 -12
		B	T R	12 - 2
		B	T R	2 - 4
		B	T R	8 -10
		B	M W	8 -10
		B	M W	10 -12
		B	M W	12 - 2
		B	M W	2 - 4
		B	M W	3 - 5
609	5	L	M W F	3
		B	M W	8 -11
		B	M W	12 - 3
		B	T R	1 - 4
		B	T R	10 - 1
615	5	L	T RF	11
		B	M W F	1 - 3
		B	M W F	3 - 5
622	5	L	M W F	4
		B	M W	8 -10
		B	M W	10 -12
		B	M W	1 - 3
		B	T R	10 -12
		B	T R	12 - 2
		B	T R	2 - 4
652	6	L	T R S	10
		H		11
		B	T R S	8 -10
693	1- 5	I10		ARR
749	5	L10	M W F	11
		B10	T R	9 -12
760	5	L	M W F	2
		B	T R	1 - 4
880	3	S10		ARR
897	1	S		ARR
999		I		ARR

SPRING QUARTER

509	5	L	M W F	9
		L	M W F	2
		B	M W	8 -10
		B	T R	8 -10
		B	M W	10 -12
		B	T R	10 -12
		B	M W	12 - 2
		B	T R	12 - 2
		B	M W	2 - 4
		B	T R	2 - 4
607	5	L	M W F	4
		B	M W	8 -11
		B	T R	8 -11
		B	M W	1 - 4
		B	M W	1 - 4
		B	T R	8 -11
		B	T R	1 - 4
613	5	L	T R	10
		F		8
		B	M W F	1 - 3
		B	M W F	3 - 5
622	5	L	M W F	4
		B	T R	10 -12
		B	T R	2 - 4
		B	M W	8 -10
		B	M W	10 -12
		B	M W	12 - 2
		B	M W	2 - 4
625	5	L	M W F	3
		B	M W	10 -12
		B	T R	9 -11
		B	T R	1 - 3
636	5	L	M W F	3
		B	M W F	8 -10
		B	M W F	12 - 2
693	1- 5	I10		ARR
723	5	L10		ARR
		B10		ARR
734	5	L	T R	2
		B	T R	3 - 5
770	5	L10		ARR
		B10		ARR
820	5	L10		ARR
		B10		ARR

# Microbiology

No. Crd't. Sec. Day Time Instructor

SUMMER QUARTER

509	5	L	M W F	9
		L	M W F	11
		B	T R	8 -10
		B	T R	10 -12
		B	T R	2 - 4
		B	T R	10 -12
		B	T R	2 - 4
		B	T R	10 -12
		B	T R	2 - 4
605	5	L	T R	8 -10
		B	M W F	8 -10
693	1- 5	I10		ARR
880	3	S10		ARR
999		I		ARR

AUTUMN QUARTER

509	5	L	M W F	9
		L	M W F	2
		B	T R	8 -10
		B	M W	8 -10
		B	T R	10 -12
		B	M W	10 -12
		B	T R	12 - 2
		B	M W	12 - 2
		B	T R	2 - 4
		B	M W	2 - 4
607	5	L	M W F	4
		B	M W	8 -11
		B	M W	1 - 4
		B	T R	8 -11
		B	T R	1 - 4
		B	T R	11 - 2
609	5	L	M W F	3
		B	M W	9 -12
		B	M W	12 - 3
		B	T R	9 -12
		B	T R	12 - 3
614	5	L	T R	1
		F		11
		B	M W F	1 - 3
		B	M W F	3 - 5
625	5	L	M W F	9

MOTF  
BIRKFLANN

KOLONZIEJ

FREA DUGAN

KREIFR

RIGLFY

MOTF  
BIRKFLANN

FREA DUGAN

KREIFR

DOOD

ROSEN RHFI

WOLFF

RANDLES

BIRKFLANN  
MOTF

PFISTER

KREIFR  
KREIFR

DOOD

RIGLFY

WEISFR

CHORPENNTN  
CHORPENNTN  
DUGAN

PFISTER

WOLFF

Microbiology    (Cont'd)

822	3	L10	ARR	0000
880	3	S10	ARR	
896	1- 3	S	ARR	
897	1	S	ARR	
898	1	S	ARR	
999		I	ARR	

Military Science

No.    Crd't.    Sec.    Day    Time    Instructor

SUMMER QUARTER

103	2	D	T	8	-10
		D	T	10	-12
		D	W	10	-12
		D	R	8	-10
		D	R	10	-12
		8	M	9	
		8	M	10	
201	2	D	T R	10	
202	2	D	W F	10	
203	2	D	T R	9	
		D	W F	9	
		8	M	9	
		8	M	10	
302	3	D	T R	8	-10
		8	M	9	
		8	M	10	
401	3	D	W F	8	-10
402	3	8	M	9	
		8	M	10	
		D	ARR		
		8	ARR		

SUMMER 2ND TERM

403	3	D		ARR	
		8	M	9	
		8	M	10	

AUTUMN QUARTER

101	2	D	T	8	-10
		D	T	10	-12
		D	T	12	- 2
		D	T	2	- 4
		D	W	8	-10
		D	W	10	-12
		D	W	12	- 2
		D	W	2	- 4
		D	R	8	-10
		D	R	10	-12
		D	R	12	- 2
		D	R	2	- 4
		D	F	8	-10
		D	F	10	-12
		D	F	12	- 2
103	2	D	T	8	-10
		D	T	10	-12
		D	T	12	- 2
		D	T	2	- 4
		D	W	8	-10
		D	W	10	-12
		D	W	12	- 2
		D	R	8	-10
		D	R	10	-12
		D	R	12	- 2
		D	R	2	- 4
		D	F	8	-10
		D	F	10	-12
		D	F	12	- 2
		8	M	10	
		8	M	11	
		8	M	1	
		8	M	2	
201	2	D	T R	8	
		D	T R	9	
		D	T R	10	
		D	T R	11	
		D	T R	1	
		D	T R	2	
		D	T R	3	
		D	T R	4	
		D	W F	8	
		D	W F	9	

		D	W F	10	
		D	W F	11	
		D	W F	1	
		D	W F	2	
		D	W F	3	
202	2	D		ARR	
203	2	D		ARR	
		8	M	10	
		8	M	11	
		8	M	1	
		8	M	2	
301	3	D	T R	8	-10
		D	T R	10	-12
		D	T R	1	- 3
		D	T R	3	- 5
		D	W F	8	-10
		D	W F	10	-12
		D	W F	1	- 3
		D	W F	3	- 5
		8	M	10	
		8	M	11	
		8	M	1	
		8	M	2	
401	3	D	T R	8	-10
		D	T R	10	-12
		D	T R	1	- 3
		D	T R	3	- 5
		D	W F	8	-10
		D	W F	10	-12
		D	W F	1	- 3
		D	W F	3	- 5
402	3	D		ARR	
403	3	D		ARR	
		8	M	10	
		8	M	11	
		8	M	1	
		8	M	2	

WINTER QUARTER

101	2	D	T	8	-10
		D	T	10	-12
		D	T	12	- 2
		D	T	2	- 4
		D	W	8	-10
		D	W	10	-12
		D	W	12	- 2
		D	W	2	- 4
		D	R	8	-10
		D	R	10	-12
		D	R	12	- 2
		D	R	2	- 4
		D	F	8	-10
		D	F	10	-12
		D	F	12	- 2
102	2	D	T	8	-10
		D	T	10	-12
		D	T	12	- 2
		D	T	2	- 4
		D	W	8	-10
		D	W	10	-12
		D	W	12	- 2
		D	W	2	- 4
		D	R	8	-10
		D	R	10	-12
		D	R	12	- 2
		D	R	2	- 4
		D	F	8	-10
		D	F	10	-12
		D	F	12	- 2
103	2	D	T	8	-10
		D	T	10	-12
		D	T	12	- 2
		D	T	2	- 4
		D	W	8	-10
		D	W	10	-12
		D	W	12	- 2
		D	R	8	-10
		D	R	10	-12
		D	R	12	- 2
		D	R	2	- 4
		D	F	8	-10
		D	F	10	-12
		D	F	12	- 2
		8	M	10	
		8	M	11	
		8	M	1	
		8	M	2	
201	2	D		ARR	
202	2	D	T R	8	
		D	T R	9	
		D	T R	10	
		D	T R	11	
		D	T R	1	
		D	T R	2	
		D	T R	3	
		D	T R	4	
		D	W F	8	



		D	W	F	9	
		D	W	F	10	
		D	W	F	11	
		D	W	F	1	
		D	W	F	2	
		D	W	F	3	
203	2				ARR	
		8			10	
		8	M		11	
		8	M		1	
		8	M		2	
302	3			T	R	8 -10
		D		T	R	10 -12
		D		T	R	1 - 3
		D		T	R	3 - 5
		D		W	F	8 -10
		D		W	F	10 -12
		D		W	F	1 - 3
		D		W	F	3 - 5
		8			10	
		8	M		11	
		8	M		1	
		8	M		2	
401	3				ARR	
402	3			T	R	8 -10
		D		T	R	10 -12
		D		T	R	1 - 3
		D		T	R	3 - 5
		D		W	F	8 -10
		D		W	F	10 -12
		D		W	F	1 - 3
		D		W	F	3 - 5
403	3				ARR	
		8			10	
		8	M		11	
		8	M		1	
		8	M		2	
SPRING QUARTER						
102	2	D	T		8 -10	
		D	T		10 -12	
		D	T		12 - 2	
		D	T		2 - 4	
		D	W		8 -10	
		D	W		10 -12	
		D	W		12 - 2	
		D	W		2 - 4	
		D	R		8 -10	
		D	R		10 -12	
		D	R		12 - 2	
		D	R		2 - 4	
		D	F		8 -10	
		D	F		10 -12	
		D	F		12 - 2	
103	2	D	T		8 -10	
		D	T		10 -12	
		D	T		12 - 2	
		D	T		2 - 4	
		D	W		8 -10	
		D	W		10 -12	
		D	W		12 - 2	
		D	R		8 -10	
		D	R		10 -12	
		D	R		12 - 2	
		D	R		2 - 4	
		D	F		8 -10	
		D	F		10 -12	
		D	F		12 - 2	
		8	M		10	
		8	M		11	
		8	M		1	
		8	M		2	
201	2				ARR	
202	2				ARR	
203	2			T	R	8
		D		T	R	9
		D		T	R	10
		D		T	R	11
		D		T	R	1
		D		T	R	2
		D		T	R	3
		D		T	R	4
		D		W	F	8
		D		W	F	9
		D		W	F	10
		D		W	F	11
		D		W	F	1
		D		W	F	2
		D		W	F	3
		8	M		10	
		8	M		11	
		8	M		1	
		8	M		2	
303	3	D	T	R	8 -10	
		D	T	R	10 -12	
		D	T	R	1 - 3	
		D	T	R	3 - 5	

		D	W	F	8 -10	
		D	W	F	10 -12	
		D	W	F	1 - 3	
		D	W	F	3 - 5	
		8	M		10	
		8	M		11	
		8	M		1	
		8	M		2	
		8	M		3	
401	3	D			ARR	
402	3	D			ARR	
403	3	D		T	R	8 -10
		D		T	R	10 -12
		D		T	R	1 - 3
		D		T	R	3 - 5
		D		W	F	8 -10
		D		W	F	10 -12
		D		W	F	1 - 3
		D		W	F	3 - 5
		8	M		10	
		8	M		11	
		8	M		1	
		8	M		2	

## Mineralogy

No.	Crd't.	Sec.	Day	Time	Instructor
SUMMER QUARTER					
999		C		ARR	
SUMMER 1ST TERM					
999		C		ARR	
SUMMER 2ND TERM					
999		C		ARR	
AUTUMN QUARTER					
414	5	L	M W F	11	TETTENHORS
		B	M W F	1 - 3	
421	3	B	M W F	10 -12	WENDEN
605	5	L	MTWTF	9	FOSTER
621	5	L	T R	1	EHLERS
		B	M W F	1 - 3	
645	5	L	M W F	1	WENDEN
		B	T R	1 - 3	
784	3- 5	C		ARR	
823	3	B	M W F	3 - 5	EHLERS
831	3	L		ARR	TETTENHORS
875	3	L		ARR	MCLACHLAN
881	1- 3	S		ARR	
999		C		ARR	
WINTER QUARTER					
414	5	L	M W F	11	TETTENHORS
		B	T R	8 -10	
422	3	B	M W F	10 -12	WENDEN
621	5	L	M W	11	EHLERS
		B	M W F	1 - 3	
646	5	L	M W F	1	WENDEN
		B	T R	1 - 3	
650	5	L	M W F	1	TETTENHORS
		B		ARR	
665	3	L	M W F	3	WENDEN
706	3	L	M W F	9	FOSTER
722	4	L	T R	9	EHLERS
		B	T R	3 - 5	
784	3- 5	C		ARR	
876	3	L		ARR	MCLACHLAN
881	1- 3	S		ARR	
999		C		ARR	STAFF
SPRING QUARTER					
414	5	L	M W F	1	TETTENHORS
		B	T R	8 -10	
624	3	B	M W F	2 - 4	WENDEN
654	5	L	M W F	11	WENDEN
		B	T R	1 - 3	
730	3	L	M W F	10	TETTENHORS
784	3- 5	C		ARR	
807	3	L		ARR	EHLERS
808	3	L		ARR	EHLERS
858	3	L		ARR	MCLACHLAN
881	1- 3	S		ARR	
999		C		ARR	

## Music

No.	Crd't.	Sec.	Day	Time	Instructor
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## SUMMER QUARTER

141	3	L	M W	9	ARR
143	3	L	M W F	10	ARR
270	3	DB	MTWRF	11	ARR
		DB	MTWRF	12	ARR
		DB	MTWRF	1	ARR
271	2	D	MTWRF	8	ARR
370	3	DB	MTWRF	10	ARR
		DB	MTWRF	11	ARR
		DB	MTWRF	2	ARR
521	3	D	M W F	10	ARR
593	1-5	S	ARR		ARR
594	1-5	S	ARR		ARR
602	2	R	ARR		ARR
622	3	L	MTWR	8	ARR
624	3	L	ARR		ARR
625	3	L	ARR		ARR
631	3	L	ARR		ARR
635	3	L	ARR		ARR
641	3	L	MTWR	10	MIXTER
645	3	L	MTWR	11	WARNER
647	3	L	MTWR	9	WARNER
680	2	I	W	4 - 6	MAIN
		I	ARR		ARR
693	1-5	S	ARR		ARR
694	1-5	S	ARR		ARR
786	3	D	T R	2 - 330	MIXTER
790	1-5	S	ARR		ARR
791	1-5	S	ARR		ARR
793	1-5	S	ARR		ARR
794	1-5	S	ARR		ARR
835	3	L	ARR		ARR
846	5	L	T R	10 - 1130	ARR
993	1-5	S	ARR		ARR
994.01	3	S	ARR		ARR
994.02	3	S	ARR		ARR
994.03	5	S	T R	2 - 330	ARR
999		S	ARR		ARR

## SUMMER 1ST TERM

180	1	P	MTWRF	12	ARR
184	1	P	MTWRF	2	ARR
188	1	P	MTWRF	1	ARR
191	1	P	ARR		ARR
192	1	P	ARR		ARR
193	1	P	ARR		ARR
194	1	P	ARR		ARR
199	1	P	ARR		ARR
201.01	1	R	ARR		ARR
201.02	1	R	ARR		ARR
201.03	1	R	ARR		ARR
201.04	1	R	ARR		ARR
201.05	1	R	ARR		ARR
201.06	1	R	ARR		ARR
261.01	2	LB	MTWR	10 - 12	RAST
261.02	2	LB	MTWR	10 - 12	RAST
261.05	2	LB	MTWR	10 - 12	EVANS
312	2	P	ARR		ARR
401.01	1	R	ARR		ARR
401.02	1	R	ARR		ARR
401.03	1	R	ARR		ARR
401.04	1	R	ARR		ARR
401.05	1	R	ARR		ARR
401.06	1	R	ARR		ARR
501.01	2	R	ARR		ARR
501.02	2	R	ARR		ARR
501.03	2	R	ARR		ARR
501.04	2	R	ARR		ARR
501.05	2	R	ARR		ARR
501.06	2	R	ARR		ARR
593	1-5	S	ARR		ARR
594	1-5	S	ARR		ARR
601.01	1	R	ARR		ARR
601.02	1	R	ARR		ARR
601.03	1	R	ARR		ARR
601.04	1	R	ARR		ARR
601.05	1	R	ARR		ARR
601.06	1	R	ARR		ARR
602	1	R	ARR		ARR
660	3	DB	MTWRF	8	MCGINNIS
661	3	DB	MTWRF	10	CASEY
693	1-5	S	ARR		ARR
694	1-5	S	ARR		ARR
711	3	L	MTWRF	11	ARR
790	1-5	S	ARR		ARR
791	1-5	S	ARR		ARR
793	1-5	S	ARR		ARR
794	1-5	S	ARR		ARR
801.01	1-2	R	ARR		ARR

801.02	1-2	R	ARR
801.03	1-2	R	ARR
801.04	1-2	R	ARR
801.05	1-2	R	ARR
801.06	1-2	R	ARR
811	3	L	MTWRF
815.02	3	L	MTWRF
861	3	L	MTWRF
863	3	L	MTWRF
864	3	L	MTWRF
870	3	D	MTWRF
874	3	L	MTWRF
993	1-5	S	ARR
994.02	3-5	S	ARR
999		S	ARR

## SUMMER 2ND TERM

201.01	1-2	R	ARR
201.02	1-2	R	ARR
201.06	1-2	R	ARR
401.01	1-2	R	ARR
	4	R	ARR
401.02	1-2	R	ARR
	4	R	ARR
401.06	1-2	R	ARR
	4	R	ARR
501.01	1-2	R	ARR
	4	R	ARR
501.02	1-2	R	ARR
	4	R	ARR
501.06	1-2	R	ARR
	4	R	ARR
593	1-5	S	ARR
594	1-5	S	ARR
601.01	1-2	R	ARR
601.02	1-2	R	ARR
601.06	1-2	R	ARR
602	1-2	D	ARR
631	3	D	MTWRF
693	1-5	S	ARR
694	1-5	S	ARR
790	1-5	D	ARR
791	1-5	D	ARR
793	1-5	S	ARR
794	1-5	S	ARR
801.01	1-2	I	ARR
	4	I	ARR
801.02	1-2	I	ARR
	4	I	ARR
801.06	1-2	I	ARR
	4	I	ARR
860	3	D	MTWRF
866	3	D	MTWRF
869	3	D	MTWRF
873	3	D	MTWRF
993	1-5	S	ARR
999		I	ARR

## AUTUMN QUARTER

100	1		T R	1	LUCE
141	3	L	M W	8	
		R	L	ARR 1 HR	
		R	L	ARR 1 HR	
		R	W F	11	
		R		ARR 1 HR	
		D	T	7	
			R	7 - 9 P	
142	3	L	M W F	9	
143	3	L	M W F	2	
180	1	P	M W	4 - 530	CASEY
181	1	P	MTWRF	12	
182	1	P	T R	4 - 530	STAIGER
183	1	P	T R	2	
184	1	P	MTWRF	12	
186	1	P	MTWRF	4 - 6	SPOHN
188	1	P	MTWRF	3	
189	1	P	M W	4 - 530	EVANS
		P	T R	4 - 530	
190	1	P	ARR		HICKFANG
191	1	P	T R	4 - 530	
192	1	P	T R	10	
193	1	P	ARR		
194	1	P	T R	2	SUDDENDORF
199	1	P	M W F	1	
201.01	1-2	R	ARR		
201.02	1-2	R	ARR		
201.03	1-2	R	ARR		
201.04	1-2	R	ARR		
201.05	1-2	R	ARR		
201.06	1-2	R	ARR		
201.07	1-2	R	ARR		
201.08	1-2	R	ARR		
201.09	1-2	R	ARR		
212	2	L	T R	9	
221	3	L	MTWRF	8	
		B	ARR 1 HR		

EVANS  
SCHNIDER  
RAMSEY  
SIMMONS  
RENNER  
CODY

WALKER

CADY  
RAMSEY  
WILSON  
BENNER

LUCE

CASEY

STAIGER

SPOHN

EVANS

HICKFANG

SUDDENDORF





**Music (Cont'd)**[illegible]



801.03	1, 2	R	ARR		
	4	R	ARR		
801.04	1, 2	R	ARR		
	4	R	ARR		
801.05	1, 2	R	ARR		
	4	R	ARR		
801.06	1, 2	R	ARR		
	4	R	ARR		
801.07	1, 2	R	ARR		
	4	R	ARR		
801.08	1, 2	R	ARR		
	4	R	ARR		
801.09	1, 2	R	ARR		
	4	R	ARR		
812	3	L	M W F	4	
822	3	L	T R	1030-12	BARNES
827	5	L	M W F	11	PHELPS
835	3	L	ARR		BARNES
837	3	S	ARR		PHELPS
838	3	S	ARR		POLAND
845	5	L	T R	2 - 330	
848	5	L	T R	1030-12	HOPPIN
852.11	3	L	ARR		
870	3	D	T	7 - 930P	BENNER
876	3	S	M W F	2	SCHNEIDER
879	3	S	M W F	3	CADY
881	3	S	ARR		
899	1- 5	S	ARR		
993	1- 5	S	ARR		
994.01	3- 5	S	ARR		PHELPS
994.02	3- 5	S	ARR		
994.03	3- 5	S	T R	9 -1030	LIVINGSTON
999		S	ARR		
SPRING QUARTER					
100	1		T R	1	LUCE
141	3		M W	8	
		L	ARR	1 HR	
		L	M W	10	
		L	ARR	1 HR	
		L	W F	11	
		R	ARR	1 HR	
		D	T	7	P
			R	7 - 9	P
142	3	L	M W F	9	
143	3	L	M W F	2	
180	1	I	M W	4 - 530	
181	1	I	MTWRF	12	
182	1	I	T R	4 - 530	SIMMONS
183	1	I	T R	2	STAIGER
184	1	I	MTWRF	12	HARDESTY
187	1	I	M W	4	SPOHN
188	1	I	MTWRF	3	MCGINNIS
189	1	I	M W	4 - 530	EVANS
		I	T R	4 - 530	BAKER
190	1	I	ARR		HICKFANG
191	1	I	ARR		
192	1	I	ARR		
193	1	I	ARR		
194	1	I	T R	2	SUDDENDORF
199	1	I	ARR		
201.01	1- 2	R	ARR		
201.02	1- 2	R	ARR		
201.03	1- 2	R	ARR		
201.04	1- 2	R	ARR		
201.05	1- 2	R	ARR		
201.06	1- 2	R	ARR		
201.07	1- 2	R	ARR		
201.08	1- 2	R	ARR		
201.09	1- 2	R	ARR		
214	2	L	T R	9	
223	3	L	MTWRF	8	
		B	ARR	1 HR	
		L	MTWRF	8	
		B	ARR	1 HR	
		L	MTWRF	9	GREEN
		B	ARR	1 HR	
		L	MTWRF	10	GREEN
		B	ARR	1 HR	
		L	MTWRF	11	HUFF
		B	ARR	1 HR	
		L	MTWRF	12	HUFF
		B	ARR	1 HR	
		L	MTWRF	2	LEVEY
		B	ARR	1 HR	
		L	MTWRF	3	LEVEY
		B	ARR	1 HR	
243	3	L	M W F	8	
		B	T R	8	
		L	M W F	2	
		B	T R	2	
261.01	2	LB	MTWR	8	RAST
		LB	MTWR	11	RAST
261.02	2	LB	MT RF	9	
261.07	2	LB	MTWR	8	SPOHN
262.01	2	LB	MTWR	9	RAST
		LB	MTWR	12	RAST

		LB	MTWR	3	RAST
		LB	MT RF	4	RAST
262.02	2	LB	MT RF	2	
262.04	2	L	T	10	WILSON
		L	T	3	WILSON
		B	M WR	9	WILSON
		B	M WR	10	WILSON
		B	M WR	3	WILSON
262.05	2	L	T	8	EVANS
		L	T	2	EVANS
		B	M W F	8	EVANS
		B	M W F	2	EVANS
		B	M W F	3	EVANS
263.01	2	LB	MTWR	10	RAST
		LB	MTWR	2	RAST
263.02	2	LB	MT RF	10	
265	2	DB	R	7	- 930P
270	3	DB	MTWRF	8	SEXTON
		DB	MTWR	9	
		DB	MTWRF	11	
		DB	MTWR	1	
		DB	MTWRF	1	
		DB	MTWRF	4	
271	2	D	MT RF	9	
		D	MT RF	10	
		D	MT RF	11	
		D	MT RF	3	
312	2	B		ARR	HICKFANG
370	3	DB	MTWRF	11	
		DB	MTWRF	2	
		DB	MTWRF	3	
		DB	MTWRF	4	
401.01	1- 2	R	ARR		
	4	R	ARR		
401.02	1- 2	R	ARR		
	4	R	ARR		
401.03	1- 2	R	ARR		
	4	R	ARR		
401.04	1- 2	R	ARR		
	4	R	ARR		
401.05	1- 2	R	ARR		
	4	R	ARR		
401.06	1- 2	R	ARR		
	4	R	ARR		
401.07	1- 2	R	ARR		
	4	R	ARR		
401.08	1- 2	R	ARR		
	4	R	ARR		
401.09	1- 2	R	ARR		
	4	R	ARR		
423	3	L	M W F	9	
		L	M W F	11	GREEN
		L	M W F	3	KUEHFFUHS
		L	M W F	3	VEDDER
426	2	B	MTWR	8	
		B	MTWR	10	VEDDER
		B	MTWR	11	VEDDER
		B	MTWR	12	LEVEY
		B	MTWR	2	
		B	MTWR	3	KUEHFFUHS
		M W		3	WALKER
429	2	L			
501.01	1- 2	R	ARR		
	4	R	ARR		
501.02	1- 2	R	ARR		
	4	R	ARR		
501.03	1- 2	R	ARR		
	4	R	ARR		
501.04	1- 2	R	ARR		
	4	R	ARR		
501.05	1- 2	R	ARR		
	4	R	ARR		
501.06	1- 2	R	ARR		
	4	R	ARR		
501.07	1- 2	R	ARR		
	4	R	ARR		
501.08	1- 2	R	ARR		
	4	R	ARR		
501.09	1- 2	R	ARR		
	4	R	ARR		
524	3	L	M W F	11	MCCLURE
535	3	L	M W F	9	VEDDER
560	3	DB	M W F	10	CASEY
561	5	D	MTW F	9	
		B	R	9	-11
562	3	DB	T R	10	-12
564	3	DB	M W F	10	
				ARR	1 HR
593	1- 5	S	ARR		
594	1- 5	S	ARR		
601.01	1- 2	R	ARR		
	4	R	ARR		
601.02	1- 2	R	ARR		
	4	R	ARR		
601.03	1- 2	R	ARR		
	4	R	ARR		
601.04	1- 2	R	ARR		
	4	R	ARR		

## Music (Cont'd)

601.05	1- 2 R	ARR			
	4	ARR			
601.06	1- 2 R	ARR			
	4	ARR			
601.07	1- 2 R	ARR			
	4	ARR			
601.08	1- 2 R	ARR			
	4	ARR			
601.09	1- 2 R	ARR			
	4	ARR			
602	2	R			
635	3	L	T R	9	-1030 WALKER
642	3	L	M W F	3	
646	3	L	M W F	11	
651	3	L	M W F	9	
652	3	L	M W F	10	
653	3	L	M W F	11	HADDAD
654	3	L	M W F	ARR	
660	3	DB	M W F	11	MCGINNIS
680	2	I	M	8	- 6
683	2	I	T	7	- 930P WELD
684	2	B			
693	1- 5 S	ARR			
694	1- 5 S	ARR			
790	1- 5 S	ARR			
791	1- 5 S	ARR			
792	1- 5 S	ARR			
793	1- 5 S	ARR			
794	1- 5 S	ARR			
801.01	2, 4 R	ARR			
801.02	2, 4 R	ARR			
801.03	2, 4 R	ARR			
801.04	2, 4 R	ARR			
801.05	2, 4 R	ARR			
801.06	2, 4 R	ARR			
801.07	2, 4 R	ARR			
801.08	2, 4 R	ARR			
801.09	2, 4 R	ARR			
823	3	L	T R	1030-12	WALKER
828	5	L	M W F	11	PHELPS
829	3	L	T R	3	- 430 POLAND
832	3	L	M W F	4	WALKER
834	3	L	M W F	10	KUEHFFUMS
835	3	L	ARR		WALKER
837	3	S	ARR		WALKER
838	3	S	ARR		PHELPS
846	5	L	T R	9	-1030
849	5	L	T R	1030-12	HOPPIN
850	5	L	M W F	2	
852.21	3	L	ARR		
860	3	D	T	7	- 930P CADY
872	3	S	M W F	3	SCHNEIDER
877	3	S	M W F	2	CADY
899	1- 5 S	ARR			
903	1- 5 S	ARR			
904.01	3- 5 S	ARR			PHELPS
904.02	3- 5 S	ARR			
904.03	3- 5 S	ARR	T R	2	- 330 HOPPIN
999	3- 5 S	ARR			

## National Security Policy Studies

No.	Crd't.	Sec.	Day	Time	Instructor
AUTUMN QUARTER					
693	3	C		ARR	
702	3- 5 S		T	10 -12	ROBINSON
WINTER QUARTER					
693	3	C		ARR	
785	3- 5 S		T	10 -12	ROBINSON
SPRING QUARTER					
693	3	C		ARR	
801	3- 5 S			ARR	ROBINSON BURKE

## Naval Science

No.	Crd't.	Sec.	Day	Time	Instructor
AUTUMN QUARTER					
141	3	L	M W F	9	GHERRITY
		L	M W F	11	GHERRITY
		L	M W F	3	GHERRITY
241	3	L	M W F	9	GHERRITY
		L	M W F	11	BRANNAN
		L	M W F	3	BRANNAN
341	3	L	M W F	9	BRANNAN
		L	M W F	10	PALMQUIST
		L	M W F	11	PALMQUIST
351	3	L	R	3	- 5 PALMQUIST
		L	M W F	9	SMITH
		L	M W F	11	SMITH
441	3	L	R	3	- 5 SMITH
		L	M W F	11	LANDECK
		L	M W F	3	LANDECK
451	3	L	R	3	- 5 SMITH
		L	M W F	11	SMITH
		L	R	3	- 5 SMITH
WINTER QUARTER					
142	3	L	M W F	9	GHERRITY
		L	M W F	11	GHERRITY
		L	M W F	3	GHERRITY
342	3	L	M W F	9	GHERRITY
		L	M W F	10	PALMQUIST
		L	M W F	11	PALMQUIST
352	3	L	R	3	- 5 PALMQUIST
		L	M W F	9	SMITH
		L	M W F	11	SMITH
442	3	L	R	3	- 5 SMITH
		L	M W F	11	LANDECK
		L	M W F	3	LANDECK
452	3	L	R	3	- 5 SMITH
		L	M W F	11	SMITH
		L	R	3	- 5 SMITH
SPRING QUARTER					
143	3	L	M W F	9	GHERRITY
		L	M W F	11	GHERRITY
		L	M W F	3	GHERRITY
243	3	L	R	3	- 5 GHERRITY
		L	M W F	9	BRANNAN
		L	M W F	11	BRANNAN
		L	M W F	3	BRANNAN
343	3	L	M W F	9	BRANNAN
		L	M W F	10	PALMQUIST
		L	M W F	11	PALMQUIST
		L	R	3	- 5 PALMQUIST
353	3	L	M W F	9	SMITH
		L	M W F	11	SMITH
		L	R	3	- 5 SMITH
443	3	D	M W F	9	SMITH
		D	M W F	11	LANDECK
		D	M W F	3	LANDECK
		L	R	3	- 5 LANDECK
453	3	L	M W F	9	SMITH
		L	M W F	11	SMITH
		L	R	3	- 5 SMITH

## Nuclear Engineering

No.	Crd't.	Sec.	Day	Time	Instructor
SUMMER QUARTER					
743	3	B		ARR	
845	3- 6 B			ARR	
885	1- 5 D			ARR	
999	I			ARR	
743	3	B		ARR	
747	3	B		ARR	



846	3- 6	B	ARR
885	1- 5	D	ARR
999		I	ARR

SUMMER 1ST TERM

743	3	B	ARR
744	3	B	ARR
845	3- 6	B	ARR
885	1- 5	L	ARR
999		I	ARR

SUMMER 2ND TERM

743	3	B	ARR
744	3	B	ARR
845	3- 6	B	ARR
885	1- 5	L	ARR
999		I	ARR

AUTUMN QUARTER

710	3	L	ARR
743		B	ARR
744	3	B	ARR
747		B	ARR
763	3	L	ARR
818	4	L	ARR
822	3	L	ARR
845	1- 6	B	ARR
881	1	L	ARR
885	1- 5	L	ARR
999		I	ARR

WINTER QUARTER

505	3	L	M W F 2	ARR
744	3	B		ARR
747	3	B		ARR
765	3	L		ARR
770	3	L		ARR
814	3	L		ARR
845	1- 6	B		ARR
864	5	L		ARR
881	1	L		ARR
885	1- 5	L		ARR
999		I		ARR

SPRING QUARTER

505	3	L	M W F 10	ARR
710	3	L	M W F 3	ARR
743	3	B		ARR
744	3	B		ARR
720	3	L	M W F 8	ARR
747	3	B		ARR
845	1- 6	B		ARR
856	4	L		ARR
881	1	L		ARR
885	1- 5	L		ARR
999		I		ARR

Nurse Anesthesiology

No. Crd't. Sec. Day Time Instructor

SUMMER QUARTER

501	15		ARR
502	15		ARR
503	15		ARR
504	15		ARR
505	15		ARR
506	15		ARR

AUTUMN QUARTER

501	15		MTW F 700	LANG
502	15		MTW F 700	LANG
503	15		MTW F 700	LANG
504	15		MTW F 700	LANG
505	15		MTW F 700	LANG
506	15		MTW F 700	LANG

WINTER QUARTER

501	15	K	MTW F 7	LANG
502	15	K	MTW F 7	LANG
503	15	K	MTW F 7	LANG
504	15	K	MTW F 7	LANG
505	15	K	MTW F 7	LANG
506	15	K	MTW F 7	LANG

SPRING QUARTER

501	15	K	MTW F 700	LANG
502	15	K	MTW F 700	LANG
503	15	K	MTW F 700	LANG
504	15	K	MTW F 700	LANG
505	15	K	MTW F 700	LANG
506	15	K	MTW F 700	LANG

Nursing

No. Crd't. Sec. Day Time Instructor

SUMMER QUARTER

350	6	LK		ARR	CURREY
410	8	L	T R	2 - 4	WILLIAMS
411	8	L	T R	2 - 4	WALLACE
420	8	L	T R	2 - 4	SHAW
421	8	L	M F	9 -11	SCHEYER
		K	T	2 - 830P	
			W	730- 230	
			R	730-12	
530	5	L 3		ARR	ROLLFR
531	8	L 4		ARR	ROLLFR
		K 4		ARR	
540	8	L	MTW F	11	HARVEY
			R	1030	
550	8	L		ARR	BUCKFRIDGE
551	10	L	MTWR	ARR	KRUSF
793	1- 5	C		ARR	
994	2- 5	S		ARR	
999		I		ARR	

SUMMER 1ST TERM

201	2		MTWR	1	
999		I		ARR	

SUMMER 2ND TERM

999		I		ARR	NEWTON
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AUTUMN QUARTER

301	6	L 2	M W F	8	WITTMFYER
		K 2	TWRF	7 -12	
350	6	L 2		ARR	CURREY
410	8	L 2	T R	2 - 4	WILLIAMS
		K 2	MTWRF	7 -12	
411	8	L 2	T R	2 - 4	WALLACE
		K 2	MTWRF	7 -12	
420	8	L 2	T R	2 - 4	SHAW
		K 2	MTWRF	7 -12	
421	8	L 2	M F	9 -11	SCHEYER
		K 2	T	130- 830P	
		K 2	W	730-12	
		K 2	R	730- 330	
530	5	L 3		ARR	ROLLFR
531	8	L 4		ARR	ROLLFR
		K 4		ARR	
540	8	L 2	MT F	11	HARVEY
			R	1030-12	
		K 2	MTW F	7 -11	
			R	7 -10	
550	8	L 2		ARR	BUCKFRIDGE
551	10	L 2		ARR	KRUSF
561	3	L 2	M W F	3	
685.03	7	K		ARR	SUMP
		S		ARR	
685.04	7	K	MTWR	7 -12	PEASE
			F	10 -12	
793	1- 5	C		ARR	
810	5	S	T R	8 - 930	CHAMBERS
		K		ARR	
840	5	S	T R	8 - 930	LEWIS
		K		ARR	
871	4	S	M W	1 - 3	
994	2- 5	S		ARR	
999		I		ARR	

WINTER QUARTER

310	8	L 2	MT RF	2	PRICE
		K 2	TWRF	7 -12	
311	8	L 2	MTWR	2	WITTMFYER
		K 2	TWRF	7 -12	
350	6	L 2		ARR	CURREY
410	8	L 2	T R	2 - 4	WILLIAMS
		K 2	MTWRF	7 -12	
411	8	L 2	T R	2 - 4	WALLACE
		K 2	MTWRF	7 -12	

## Nursing (Cont'd)

420	8	L 2	T R	2 - 4	SHAW
		K 2	MTWRF	7 -12	
421	8	L 2	M F	9 -11	SCHEYER
		K 2	T	2 - 830P	
		K 2	W	730- 230	
		K 2	R	730-12	
530	5	L 3	ARR		ROLLER
531	8	L 4	ARR		ROLLER
		K 4	ARR		
540	8	L 2	MT F	11	HARVEY
			R	1030-12	
		K 2	M	8 -11	
			TW F	7 -11	
			R	7 -10	
550	8	L 2	ARR		KRUSE
551	10	L 2	ARR		KRUSE
561	3	L 2	M W F	3	NEWTON
793	1- 5	C	ARR		
802	3	L	T R	3 - 430	SHIRK
811	5	S	T R	8 - 930	CHAMBERS
		K	ARR		
841	5	S	T R	8 - 930	LEWIS
		K	ARR		
994	2- 5	S	ARR		
999		I	ARR		
SPRING QUARTER					
310	8	L 2	MT RF	3	PRICE
		K 2	MTWRF	7 -12	
311	8	L 2	MTWR	3	WITTMAYER
		K 2	MTWRF	7 -12	
350	6	LK2	ARR		CURREY
410	8	L 2	T R	2 - 4	WILLIAMS
		K 2	MTWRF	7 -12	
411	8	L 2	T R	2 - 4	WALLACE
		K 2	MTWRF	7 -12	
420	8	L 2	T R	2 - 4	SHAW
		K 2	MTWRF	7 -12	
421	8	L 2	M F	9 -11	SCHEYER
		K 2	T	130- 830P	
		K 2	W	730-12	
		K 2	R	730- 330	
530	5	L 3	ARR		ROLLFR
531	8	L 4	ARR		ROLLFR
		K 4	MTWRF	ARR	
540	8	L 2	MT F	11	HARVEY
			R	1030-12	
		K 2	MTW F	7 -11	
			R	7 -10	
550	8	LK2	ARR		BUCKFRIDGF
551	10	L 2	ARR		KRUSE
		K 2	MTWRF	7 -12	
		K 2	TWRF	3 -11 P	
561	3	L 2	M W F	3	
802	3	S	T R	3 - 430	
812	5	S	M W	8 - 930	CHAMBERS
		K	ARR		
842	5	S	M W	8 - 930	LEWIS
		K	ARR		
793	1- 5	C	ARR		
870	5	D	M F	10 -12	PEASE
			ARR	1 HR	
994	2- 5	S	ARR		
999		I	ARR		

## Obstetrics and Gynecology

No.	Crd't.	Sec.	Day	Time	Instructor
SUMMER QUARTER					
737	6,12	I	ARR		
740	6	I	ARR[AUG]		
745	6	I	ARR[SEPT]		
751.01	6	I	ARR		
751.02	6	I	ARR		
793.01	2- 5	I	ARR		
793	6	I	ARR		
793.02	2- 5	I	ARR		
793	6	I	ARR		
799	18	I	ARR		
900	2- 5	I	ARR		
999		I	ARR		

## AUTUMN QUARTER

737	6,12	L	MTWRF	8	- 9
		D	MTWRF	1	- 3
		S	S	8	- 9
740	6	I		ARR	
751.01	6	I		ARR	
751.02	6	I		ARR	
793.01	2- 5	I		ARR	
	6	I		ARR	
793.02	2- 5	I		ARR	
	6	I		ARR	
799	18	I		ARR	
900	2- 5	C	M	3	- 5
		I		ARR	
999		I		ARR	
WINTER QUARTER					
737	6,12	L	MTWRF	8	- 9
		D	MTWRF	1	- 3
		S	S	8	- 9
745	6	I		ARR	
751.01	6	I		ARR	
751.02	6	I		ARR	
793.01	2- 5	I		ARR	
	6	I		ARR	
793.02	2- 5	I		ARR	
	6	I		ARR	
799	18	I		ARR	
900	2- 5	C	M	3	- 5
		I		ARR	
999		I		ARR	

## Occupational Therapy

No.	Crd't.	Sec.	Day	Time	Instructor
SUMMER QUARTER					
204	1	B	ARR		
520	6	K	ARR		ROSS
SUMMER 1ST TERM					
200	1	D	ARR		LOCHFR
520	3	K	ARR		ROSS
SUMMER 2ND TERM					
520	3	K 2	ARR		ROSS
AUTUMN QUARTER					
200	1	D	T	2	LOCHFR
201	1	D 2	T R	1	LOCHFR
204	1	B 2	ARR		LOCHFR
301	2	D 2	T R	8	HEERMANS
505	5	D 2	M F	2	GRANT WORL
			M F	4	
		B 2	M F	3	
		K 2	W	2 - 4	
506	2	D 2	T R	3	LOCHFR
507	8	D 2	M W F	10 -12	ROSS
		KB2	T R	9 -12	
520	6	K 2	ARR		ROSS
597	1	S 2	T	2	HEERMANS
WINTER QUARTER					
200	1	D	T	9	GRANT
202	1	D 2	T	1	WORLEY
		B 2	ARR		
204	1	B 2	ARR		LOCHFR
404	8	D 2	MT RF	1	BUCKEY
		BK2	M	3 - 430	
			F	3 - 430	



520	6	K 2	W	1 - 4	
595	1	S 2	W	ARR 11	ROSS HEERMANS
SPRING QUARTER					
203	1	D2	T	1	BUCKEY
		B2		ARR	
204	1	B2		ARR	LOCHER
403	8	D2	M	F	GRANT, WORL
			W	10	
			T	4	
		K2	T R	9 -12	
520	6	K2	T R	ARR	ROSS
595	1	S2	T	ARR 11	HEERMANS

793.04	1- 5 W	ARR	MAKLEY
	6,12 W	ARR	MAKLEY
	18	ARR	MAKLEY
799	18 KO	ARR	MAKLEY
850	3- 5 S	ARR	MAKLEY
999	W	ARR	MAKLEY

Ophthalmology

No. Crd't. Sec. Day Time Instructor

SUMMER QUARTER

793.01	1- 5 I	ARR	
	6,12 I	ARR	
	18 I	ARR	
793.02	1- 5 I	ARR	
	6,12 I	ARR	
	18 I	ARR	
793.03	1- 5 I	ARR	
	6,12 I	ARR	
	18 I	ARR	
793.04	1- 5 I	ARR	
	6,12 I	ARR	
	18 I	ARR	
794	6,12 I	ARR	
	18 I	ARR	
999	I	ARR	

AUTUMN QUARTER

751	1 C	ARR	MAKLEY
793.01	1- 5 W	ARR	
	6,12 W	ARR	
	18 W	ARR	
793.02	1- 5 W	ARR	
	6,12 W	ARR	
	18 W	ARR	
793.03	1- 5 W	ARR	
	6,12 W	ARR	
	18 W	ARR	
793.04	1- 5 W	ARR	MAKLEY
	6,12 W	ARR	MAKLEY
	18 W	ARR	
794	6,12 W	ARR	
	18 W	ARR	
799	18 KO	ARR	MAKLEY
850	3- 5 S	ARR	MAKLEY
999	W	ARR	MAKLEY

WINTER QUARTER

751	1 C	ARR	MAKLEY
793.01	1- 5 W	ARR	SUIE
	6,12 W	ARR	SUIE
	18 W	ARR	SUIE
793.02	1- 5 W	ARR	KEATES
	6,12 W	ARR	KEATES
	18 W	ARR	KEATES
793.03	1- 5 W	ARR	MAKLEY
	6,12 W	ARR	MAKLEY
	18 W	ARR	MAKLEY
793.04	1- 5 W	ARR	HAVENER
	6,12 W	ARR	HAVENER
	18 W	ARR	HAVENER
794	6,12 K	ARR	MAKLEY
	18 K	ARR	MAKLEY
799	18 KO	ARR	MAKLEY
850	3- 5 S	ARR	MAKLEY
999	W	ARR	MAKLEY

SPRING QUARTER

793.01	1- 5 W	ARR	MAKLEY
	6,12 W	ARR	MAKLEY
	18 W	ARR	MAKLEY
793.02	1- 5 W	ARR	MAKLEY
	6,12 W	ARR	MAKLEY
	18 W	ARR	MAKLEY
793.03	1- 5 W	ARR	MAKLEY
	6,12 W	ARR	MAKLEY
	18 W	ARR	MAKLEY

Optometry

No. Crd't. Sec. Day Time Instructor

SUMMER QUARTER

641	5	L	T R	12	
		K		ARR	
642	5	L	T R	12	
		K		ARR	
643	5	L	T R	12	
		K		ARR	

AUTUMN QUARTER

401	1	L	T	4	ESKRIDGE
433	4	L	M W F	3	WILD
		B	T	8 -10	
		B	T	10 -12	
		B	R	8 -10	
		B	R	10 -12	
441	4	L	M W F	10	HEBBARD
		B	W	2 - 5	
		B	W	2 - 5	
641	5	D	M W	1	KERR
642	5	D	M W	1	KERR
643	5	D	M W	1	KERR
		K	MTWRF	8 -10	
		K	MTWRF	10 -12	
653	4	L	M W F	4	BAILEY
		B	M	8 -10	
		B	M	10 -12	
		B	W	8 -10	
		B	W	10 -12	
660	5	L	M W F	11	HILL
		B	T R	6 - 9 P	
702	4	L	M W F	2	ESKRIDGE
		B	T	1 - 3	
		B	T	3 - 5	
		B	R	1 - 3	
		B	R	3 - 5	
741	5	D	M F	9	WARSHAW
742	5	D	M F	9	WARSHAW
743	5	D	M F	9	WARSHAW
741	5	K	M R	1 - 5	
			W	1 - 3	
		K	T F	1 - 5	
			W	3 - 5	
745	3, 5	K	R	8 -12	
		K	R	1 - 5	

WINTER QUARTER

431	4	L	M W F	11	WILD
		B	T	8 -10	
		B	T	10 -12	
		B	R	8 -10	
		B	R	10 -12	
442	4	L	M W F	10	HEBBARD
		B	M	2	
		K	W	3 - 5	
		B	W	2	
641	5	D	W F	2	KERR
642	5	D	W F	2	KERR
643	5	D	W F	2	KERR
		K	MTWRF	8 -10	
		K	MTWRF	10 -12	
652	4	L	M	1	FUGATE
			W	2	
		B	W	5	
		B	M	8 -10	
		B	M	10 -12	
		B	W	8 -10	
		B	W	10 -12	
703	4	L	M W F	4	SCHOFSSLER
		B	M	8 -10	
		B	M	10 -12	
		B	W	8 -10	
		B	W	10 -12	
721	3	L	M W F	8	FUGATE
741	5	D	M F	12	WARSHAW
742	5	D	M F	12	WARSHAW

Optometry (Cont'd)

743	5	D	M F	12	- 5	WARSHAW
		K	M R	1	- 3	
			W	1	- 3	
		K	T F	3	- 5	
			W	3	- 5	
745	3- 5	K	R	8	-12	
		K	R	1	- 5	
SPRING QUARTER						
432	4	L	M W F	11		WILD
		B	T	8	-10	
		B	T	10	-12	
		B	R	8	-10	
		B	R	10	-12	
443	4	L	M W F	10		HERBARD
		B	M	2	- 5	
		B	W	2	- 5	
641	5	D	M W	2		KERR
642	5	D	M W	2		KERR
643	5	D	M W	2		KERR
		K	MTWRF	8	-10	
		K	MTWRF	10	-12	
651	4	L	M W F	4		ESKRIDGE
		B	M	8	-10	
		B	W	8	-10	
		B	W	10	-12	
660	5	L	M W F	3		HILL
		B	T R	2	- 5	
701	4	L	M W F	8		
		B	T	8	-10	
		B	T	10	-12	
		B	R	8	-10	
		B	R	10	-12	
722	3	L	M W F	11		WARSHAW
741	5	D	M W	10		WARSHAW
742	5	D	M W	10		WARSHAW
743	5	D	M W	10		WARSHAW
		K	M R	1	- 5	
			W	1	- 3	
		K	T F	1	- 5	
			W	3	- 5	
745	3, 5	K	R	8	-12	
		K	R	1	- 5	

794	6	K	ARR	SAUNDERS
799	18	W	ARR	SAUNDERS
850.01	2	S	ARR	MIGLETS I I
850.02	2	S	ARR	SAUNDERS
850.03	4	S	ARR	MELNICK
850.04	4	S	ARR	NILO
999		I	ARR	

Pathology

No. Crd't. Sec. Day Time Instructor

SUMMER QUARTER

501	3	L	M W F	11	
793.01	6,12	W		ARR	
	18	W		ARR	
793.02	6,12	W		ARR	
793.03	6,12	W		ARR	
	18	W		ARR	
793.04	6,12	W		ARR	
	18	W		ARR	
793.05	6,12	W		ARR	
	18	W		ARR	
793.06	6	W		ARR	
793.07	6,12	W		ARR	
	18	W		ARR	
793.08	6,12	W		ARR	
793.09	6,12	W		ARR	
	18	W		ARR	
793.10	6,12	W		ARR	
793.11	6,12	W		ARR	
793.12	6,12	W		ARR	
793.13	6,12	W		ARR	
793.14	6,12	W		ARR	
	18	W		ARR	
793.15	3- 5			ARR	
798	18	K		ARR	
799	18	K		ARR	
850	2	S	W	3 - 5	
999		I		ARR	

AUTUMN QUARTER

502	3	L	M W F	1		MACPHERSON
505	3	L	M W F	11		
624	7	L		ARR		
		B		ARR		
650	5	L	T R S	8		
		B	T R S	9	-11	
792.05	3	L		ARR		
793.01	6,12	W		ARR		
	18	W		ARR		
793.02	6,12	W		ARR		
793.05	6,12	W		ARR		
	18	W		ARR		
793.07	6,12	W		ARR		
	18	W		ARR		
793.08	6,12	W		ARR		
793.09	6,12	W		ARR		
	18	W		ARR		
793-10	6,12	W		ARR		
793.12	6,12	W		ARR		
793.13	6,12	W		ARR		
793.14	6,12	W		ARR		
	18	W		ARR		
793.15	3- 5	I		ARR		
798	18	K		ARR		
799	18	K		ARR		
850	2	S	W	3 - 5		
999		I		ARR		

WINTER QUARTER

503	3	L	M W F	11		MACPHERSON
506	2	L	T R	1		
603	6	L		ARR		
		B		ARR		
625	4	L		ARR		
		B		ARR		
792.07	3	L		ARR		
793.01	6,12	W		ARR		
	18	W		ARR		
793.02	6,12	W		ARR		
793.03	6,12	W		ARR		
	18	W		ARR		
793.04	6,12	W		ARR		
	18	W		ARR		
793.05	6,12	W		ARR		

Otolaryngology

No. Crd't. Sec. Day Time Instructor

SUMMER QUARTER

793	2- 5	L		ARR		
	6,12	L		ARR		
	18	L		ARR		
794	6			ARR		SAUNDERS
799	18	W		ARR		
999		I		ARR		

AUTUMN QUARTER

751	1	L		ARR		
793	2- 6	B		ARR		
	12,18	B		ARR		
794	6	K		ARR		SAUNDERS
799	18	W		ARR		
820	6			ARR		SAUNDERS
850.02	2			ARR		SAUNDERS
999				ARR		

WINTER QUARTER

751	1	L		ARR		
793	2- 5	L		ARR		
794	6,12	K		ARR		SAUNDERS
	18	K		ARR		SAUNDERS
799	18	W		ARR		
820	6	L		ARR		SAUNDERS
850.01	2	S		ARR		MIGLETS I I
850.02	2	S		ARR		SAUNDERS
850.03	4	S		ARR		MELNICK
850.04	4	S		ARR		NILO
999		I		ARR		

SPRING QUARTER

793	2- 5	L		ARR		
	6,12	L		ARR		
	18	L		ARR		



793.06	18	W	ARR	
793.07	6	W	ARR	
	6:12	W	ARR	
	18	W	ARR	
793.08	6:12	W	ARR	
793.09	6:12	W	ARR	
	18	W	ARR	
793.10	6:12	W	ARR	
793.14	6:12	W	ARR	
	18	W	ARR	
793.15	3- 5		ARR	
798	18	K	ARR	
799	18	K	ARR	
850	2	S	W 3 - 5	
999			ARR	
SPRING QUARTER				
504	3	L	M W F 9	GRUENER
507	2	L	Y R 9	
626	4	L	ARR	
		B	ARR	
655	5	L	T R S 8	
		B	R S 9	
			10 -12	
792.08	3	L	ARR	
793.01	6:12	W	ARR	
	18	W	ARR	
793.02	6:12	W	ARR	
793.03	6:12	W	ARR	
	18	W	ARR	
793.04	6:12	W	ARR	
	18	W	ARR	
793.06	6	W	ARR	
793.08	6:12	W	ARR	
793.10	6:12	W	ARR	
793.15	3- 5	W	ARR	
798	18	K	ARR	
799	18	K	ARR	
850	2	S	W 3 - 5	
999		I	ARR	

## Pediatrics

No.	Crd't.	Sec.	Day	Time	Instructor
SUMMER QUARTER					
715	6:12	K		ARR	
793.01	1- 5	K		ARR	
	6:12	K		ARR	
	18	K		ARR	
793.02	1- 5	K		ARR	
	6:12	K		ARR	
	18	K		ARR	
793.03	1- 5	K		ARR	
	6:12	K		ARR	
	18	K		ARR	
793.04	1- 5	K		ARR	
	6:12	K		ARR	
	18	K		ARR	
793.05	1- 5	K		ARR	
	6:12	K		ARR	
	18	K		ARR	
793.06	1- 5	K		ARR	
	6	K		ARR	
793.07	6:12	K		ARR	
	18	K		ARR	
793.08	1- 5	K		ARR	
	6:12	K		ARR	
	18	K		ARR	
793.09	1- 5	K		ARR	
	6:12	K		ARR	
	18	K		ARR	
793.10	1- 5	K		ARR	
	6:12	K		ARR	
	18	K		ARR	
793.11	1- 5	K		ARR	
	6:12	K		ARR	
	18	K		ARR	
793.12	6	K		ARR	
793.13	1- 5	K		ARR	
	6:12	K		ARR	
	18	K		ARR	
793.14	6:12	K		ARR	
	18	K		ARR	
793.15	6:12	K		ARR	
	18	K		ARR	
794.01	6:12	K		ARR	
	18	K		ARR	

794.02	6:12	K	ARR	
	18	K	ARR	
794.03	6:12	K	ARR	
	18	K	ARR	
794.04	6	K	ARR	
794.05	6:12	K	ARR	
	18	K	ARR	
794.06	6	K	ARR	
794.07	6:12	K	ARR	
	18	K	ARR	
794.08	6:12	K	ARR	
	18	K	ARR	
794.09	6	K	ARR	
794.10	6:12	K	ARR	
	18	K	ARR	
794.11	6	K	ARR	
798	18	K	ARR	
799	18	K	ARR	
850	3- 5	S	ARR	
999		I		
SUMMER 1ST TERM				
850	3- 5		ARR	
999		L	ARR	
SUMMER 2ND TERM				
850	3- 5	S	ARR	
999		I	ARR	
AUTUMN QUARTER				
715	6:12	K	ARR	
793.01	6:12	K	ARR	GRAHAM
	18	K	ARR	
793.02	1- 5	K	ARR	KONTRAS
	6:12	K	ARR	
	18	K	ARR	
793.03	1- 5	K	ARR	CRAWLEY
	6:12	K	ARR	
	18	K	ARR	
793.04	1- 5	K	ARR	HOSIER
	6:12	K	ARR	
	18	K	ARR	
793.05	1- 5	K	ARR	WEHE
	6:12	K	ARR	
	18	K	ARR	
793.06	1- 6	K	ARR	NEWTON
793.07	6:12	K	ARR	ROBERTSON
	18	K	ARR	
793.08	1- 5	K	ARR	SHAFFER
	6:12	K	ARR	
	18	K	ARR	
793.09	1- 5	K	ARR	SOTOS
	6:12	K	ARR	
	18	K	ARR	
793.10	1- 5	K	ARR	YOUNG
	6:12	K	ARR	
	18	K	ARR	
793.11	1- 5	K	ARR	GIBSON
	6:12	K	ARR	
	18	K	ARR	
793.12	6	K	ARR	TURNER
793.13	1- 5	K	ARR	NELSEN
	6:12	K	ARR	
	18	K	ARR	
793.14	6:12	K	ARR	OWEN
	18	K	ARR	
793.15	6:12	K	ARR	ROBERTSON
	18	K	ARR	
794.01	6:12	K	ARR	GRAHAM
	18	K	ARR	
794.02	6:12	K	ARR	AMBUFL
	18	K	ARR	
794.03	6:12	K	ARR	GRAHAM
	18	K	ARR	
794.04	6	K	ARR	HOSIER
794.05	6	K	ARR	SOTOS
794.06	6	K	ARR	NEWTON
794.07	6:12	K	ARR	SHAFFER
	18	K	ARR	
794.08	6:12	K	ARR	GIBSON
	18	K	ARR	
794.09	6	K	ARR	YOUNG
794.10	6:12	K	ARR	WEHE
	18	K	ARR	
794.11	6	K	ARR	ROBERTSON
798	18	K	ARR	GRAHAM
799	18	K	ARR	GRAHAM
999		L	ARR	GRAHAM
WINTER QUARTER				
715	6:12	K	ARR	GRAHAM
793.01	1- 5	K	ARR	GRAHAM
	6:12	K	ARR	
	18	K	ARR	
793.02	1- 5	K	ARR	
	6:12	K	ARR	

Pediatrics (Cont'd)

	18	K	ARR	
793.03	1- 5	K	ARR	
	6,12	K	ARR	
	18	K	ARR	
793.04	1- 5	K	ARR	
	6,12	K	ARR	
	18	K	ARR	
793.05	1- 5	K	ARR	
	6,12	K	ARR	
	18	K	ARR	
793.06	1- 5	K	ARR	
	6	K	ARR	
793.07	6,12	K	ARR	
	18	K	ARR	
793.08	1- 5	K	ARR	
	6,12	K	ARR	
	18	K	ARR	
793.09	1- 5	K	ARR	
	6,12	K	ARR	
	18	K	ARR	
793.10	1- 5	K	ARR	
	6,12	K	ARR	
	18	K	ARR	
793.11	1- 5	K	ARR	
	6,12	K	ARR	
	18	K	ARR	
793.12	6	K	ARR	
793.13	1- 5	K	ARR	
	6,12	K	ARR	
	18	K	ARR	
793.14	6,12	K	ARR	
	18	K	ARR	
793.15	6,12	K	ARR	
	18	K	ARR	
794.01	6,12	K	ARR	
	18	K	ARR	
794.02	6,12	K	ARR	
	18	K	ARR	
794.03	6,12	K	ARR	
	18	K	ARR	
794.04	6	K	ARR	
794.05	6	K	ARR	
794.06	6	K	ARR	
794.07	6,12	K	ARR	
	18	K	ARR	
794.08	6,12	K	ARR	
	18	K	ARR	
794.09	6	K	ARR	
794.10	6,12	K	ARR	
	18	K	ARR	
794.11	6	K	ARR	
798	18	K	ARR	GRAHAM
799	18	K	ARR	GRAHAM
830	3	K	ARR	HAYNFS
850	3- 5	S	ARR	GRAHAM
999	L		ARR	GRAHAM
SPRING QUARTER				
715	6,12	K	ARR	GRAHAM
793.01	1- 5	K	ARR	GRAHAM
	6,12	K	ARR	
	18	K	ARR	
793.02	1- 5	K	ARR	
	6,12	K	ARR	
	18	K	ARR	
793.03	1- 5	K	ARR	
	6,12	K	ARR	
	18	K	ARR	
793.04	1- 5	K	ARR	
	6,12	K	ARR	
	18	K	ARR	
793.05	1- 5	K	ARR	
	6,12	K	ARR	
	18	K	ARR	
793.06	1- 6	K	ARR	
793.07	6,12	K	ARR	
	18	K	ARR	
793.08	1- 5	K	ARR	
	6,12	K	ARR	
	18	K	ARR	
793.09	1- 5	K	ARR	
	6,12	K	ARR	
	18	K	ARR	
793.10	1- 5	K	ARR	
	6,12	K	ARR	
	18	K	ARR	
793.11	1- 5	K	ARR	
	6,12	K	ARR	
	18	K	ARR	
793.12	6	K	ARR	
793.13	1- 5	K	ARR	
	6,12	K	ARR	
	18	K	ARR	

793.14	6,12	K	ARR	
	18	K	ARR	
793.15	6,12	K	ARR	
	18	K	ARR	
794.01	6,12	K	ARR	GRAHAM
	18	K	ARR	
794.02	6,12	K	ARR	
	18	K	ARR	
794.03	6,12	K	ARR	
	18	K	ARR	
794.04	6	K	ARR	
794.05	6,12	K	ARR	
	18	K	ARR	
794.06	6	K	ARR	
794.07	6,12	K	ARR	
	18	K	ARR	
794.08	6,12	K	ARR	
	18	K	ARR	
794.09	6	K	ARR	
794.10	6,12	K	ARR	
	18	K	ARR	
794.11	6	K	ARR	
798	18	K	ARR	GRAHAM
799	18	K	ARR	GRAHAM
850	3- 5	S	ARR	GRAHAM
999	L		ARR	GRAHAM

Petroleum Engineering

No.	Crd't.	Sec.	Day	Time	Instructor
SUMMER QUARTER					
999		I		ARR	
SUMMER 1ST TERM					
999		I		ARR	
SUMMER 2ND TERM					
999		I		ARR	
AUTUMN QUARTER					
641	3	LB		ARR	SLIDFR
642	3	LB		ARR	SLIDFR
743.01	3-10	CB		ARR	SLIDFR
743.02	3-10	CB		ARR	SLIDFR
842	3-10	LB		ARR	SLIDFR
999		I		ARR	
WINTER QUARTER					
442	3	L		ARR	SLIDFR
542	3	LB		ARR	SLIDFR
543	2	LB		ARR	SLIDFR
743.01	3-10	CB		ARR	SLIDFR
743.02	3-10	CB		ARR	SLIDFR
842	3-10	LB		ARR	SLIDFR
999		I		ARR	SLIDFR
SPRING QUARTER					
544	3	L		ARR	SLIDFR
743.02	3-10	CB		ARR	SLIDFR
796	2	S		ARR	SLIDFR
842	3-10	LB		ARR	SLIDFR
999		I		ARR	SLIDFR

Pharmacology

No.	Crd't.	Sec.	Day	Time	Instructor
SUMMER QUARTER					
793	3-15	B		ARR	
	18	B		ARR	
823	3-15	B		ARR	GARDIER
850	2	S		ARR	
999		I		ARR	



SUMMER 1ST TERM

850	2	S	ARR	MARKS
999		I	ARR	
SUMMER 2ND TERM				
850	2	S	ARR	MARKS
999		I	ARR	
AUTUMN QUARTER				
600	3	L	M W F	LEVEQUE
793	3-15	B	ARR	MARKS
	18	B	ARR	MARKS
850	2	S	F	3 - 5
999		I	ARR	MARKS

WINTER QUARTER

610	3	L	ARR	
		B	ARR	
700	4	CL	MTWR	1
793	3-15	B	ARR	MARKS
	18	B	ARR	MARKS
845	5-15	D	ARR	HOLLANDER
850	2	S	F	3 - 5
999		B	ARR	MARKS

SPRING QUARTER

701	5	L	MTWR	1
770	3	D	MTWRF	ARR
793	3-15	B	ARR	ENGELMAN
	6,12	B	ARR	
	18	B	ARR	MARKS
822	3-15	D	ARR	GOLDMAN
850	2	S	F	3 - 5
999		B	ARR	MARKS

## Pharmacy

No.	Crd't.	Sec.	Day	Time	Instructor
SUMMER QUARTER					
693	1- 3	I	ARR		
809	3	L	ARR		GUTH
		B	ARR		
853	2, 3	B	ARR		BEAL
993	1- 5	I	ARR		
999		I	ARR		
SUMMER 1ST TERM					
534	4	L	MTWR	9 -11	LAPIDUS
SUMMER 2ND TERM					
535	4	L	MTWR	9 -11	LAPIDUS
AUTUMN QUARTER					
400	3	L	ARR		KNAPP
432	5	L	ARR		OLSON
		B	ARR		
503	5	L	M W F		SOKOLOSKY
		B	ARR		
507	3	L	ARR		GUTH
		B	ARR		
511	2	L	ARR		RUERKI
515	3	L	ARR		LATIOLAIS
		B	ARR		
600	3	L	ARR		GUTH
		B	ARR		BOPE
601	3	L	ARR		GUTH
		B	ARR		
606	5	L	ARR		NOTARI
		B	ARR		GODWIN
670	6	L	ARR		
		B	ARR		
675	3	L	ARR		TYE
677	3	L	ARR		NELSON
693	1- 3	I	ARR		
695	2	S	ARR		LAPIDUS
700	5	L	ARR		OBER
		B	ARR		MALSPEIS
715	3	L	ARR		LATIOLAIS
826	3	L	ARR		KNAPP
835	3	L	ARR		WITIAK
850	1	S	ARR		
870	3	L	ARR		
993	1- 5	I	ARR		
999		I	ARR		

WINTER QUARTER

401	5	L	ARR	MALSPEIS
		B	ARR	
432	5	L	M	9 -11
		B	ARR	OLSON
504	5	L	ARR	SOKOLOSKY
		B	ARR	
508	3	L	ARR	GUTH
		B	ARR	
512	2	L	ARR	RUERKI
515	3	L	ARR	LATIOLAIS
		B	ARR	
577	3	L	ARR	TYE
600	3	L	ARR	GUTH
601	3	L	ARR	GUTH
		B	ARR	
610	3	L	ARR	SALISBURY
615	3	L	ARR	SHOUP
		B	ARR	
673	6	L	ARR	
		B	ARR	
680	3	L	ARR	NELSON
693	1- 3	I	ARR	
695	2	S	ARR	
717	3	L	ARR	LATIOLAIS
		B	ARR	
725	3	L	ARR	KNAPP
754	3	L	ARR	BEAL
		B	ARR	
789	5	L	ARR	DOSKOTCH
		B	ARR	
805	3	L	ARR	GUTH
		B	ARR	
816	3	L	ARR	LATIOLAIS
836	3	L	ARR	WITIAK
850	1	S	ARR	
871	3	L	ARR	WOLF
		B	ARR	
881	3	L	ARR	OBER
993	1- 5	I	ARR	
999		I	ARR	

SPRING QUARTER

402	5	L	ARR	MALSPEIS
		B	ARR	
450	4	L	ARR	BEAL
470	4	L	MTW	1
		R	F	1
475	5	L	ARR	TYE
505	5	L	ARR	NOTARI
		B	ARR	GODWIN
509	3	L	ARR	GUTH
		B	ARR	
515	3	L	ARR	LATIOLAIS
		B	ARR	
601	3	L	ARR	GUTH
		B	ARR	
609	3	L	ARR	GUTH
611	3	L	ARR	SALISBURY
613	3	L	ARR	
614	2	L	ARR	RUERKI
625	3	L	ARR	SALISBURY
676	6	L	ARR	
		B	ARR	
693	1- 3	I	ARR	
695	2	S	ARR	
737	5	L	ARR	OLSON
		B	ARR	
806	2, 3	B	ARR	GUTH
811	3	L	ARR	
817	3	L	ARR	LATIOLAIS
846	3	L	ARR	LAPIDUS
850	1	S	ARR	
853	2- 3	B	ARR	BEAL
872	3	L	ARR	PATIL
		B	ARR	
993	1- 5	I	ARR	
999		I	ARR	

## Philosophy

No.	Crd't.	Sec.	Day	Time	Instructor
SUMMER QUARTER					
101	5	L	M W F	11	





			R	T	R	10		
			L	T	R	11		
			L	M	W	F	2	
			R	T	R	1		
			R	T	R	2		
210	5		R	T	R	3		TURNBULL
			L	M	W	F	9	
			R	T	R	8		
			R	T	R	9		
			R	T	R	10		
			R	T	R	11		
			R	T	R	12		
230	5	O		M	T	W	R	F 2
240	5	L			M	T	W	R
513	5	O			M	T	W	R
		O			M	T	W	R
631	5	O			M	T	W	R
653	3	D			M	W	F	1
693	2-10	I						ARR
717	3	D			M	W	F	10
761	3	D			M	W	F	8
770	3	D			M	W	F	11
		O			M	W	F	2
771	3	D			M	W	F	11
811	3	S						ARR
841	3	S						ARR
864	3	S						ARR
885	3	S						ARR
999		I						ARR

Photography

No.	Crd't.	Sec.	Day	Time	Instructor
SUMMER QUARTER					
201	3	L	M	W	9
		B	M	W	10 -12
		L	T	R	9
		B	T	R	10 -12
506	3	L	M	W	10
507	3	LB	T	R	10 -12
594	3	L	M	W	3
		B	M	W	1 - 3
		B	T	R	3 - 5
693	3- 5	C	T	R	1 - 3
AUTUMN QUARTER					
201	3	L	T	R	8
		B	T	R	9 -11
		L	T	R	1
		B	T	R	2 - 4
502	3	L	M	W	2
505	3	L	T	R	10 -12
506	3	LB	T	R	2 - 4
507	3	L	M	F	9
		B	M	W	9 -11
508	3	L	M	W	3
		B	M	W	3 - 5
594	3	L	M	W	8
		B	M	W	9 -11
		L	M	W	1
		B	M	W	2 - 4
693	3- 5	C		F	10 -12
794	3- 5	S	M		10 -12
WINTER QUARTER					
201	3	L	T	R	3
		B	T	R	1 - 3
501	3	L	M	W	8
		B	M	W	9 -11
		L	T	R	8
		B	T	R	9 -11
503	3	LB	T	R	10 -12
507	3	L	M	F	10
		B	M	W	10 -12
594	3	L	M	W	1
		B	M	W	2 - 4
		L	T	R	3
		B	T	R	3 - 5
693	3- 5	C		F	10 -12
794	3- 5	S		F	1 - 3
SPRING QUARTER					
201	3	L	M	W	8
		B	M	W	9 -11
		L	M	W	1
		B	M	W	2 - 4

			L	T	R	8		WILHFLM
			B	T	R	9 -11		WILHFLM
			L	T	R	1		WILHFLM
			B	T	R	2 - 4		WILHFLM
502	3	L	M	W	F	2		WAGNER
505	3	L	T	R	10	-12		STAPLES
506	3	LB	T	R	2 - 4			WAGNER
507	3	L	M	F	9			ELGABRI
		B	M	F	9	-11		ELGABRI
			M	F	9	-11		ELGABRI
508	3	L	M	F	3			ELGABRI
		B	M	F	3	- 5		ELGABRI
			M	F	3	- 5		ELGABRI
693	3- 5	C		F	9	-11		
794	3- 5	S		R	3	- 5		

Physical Education

No.	Crd't.	Sec.	Day	Time	Instructor
SUMMER 1ST TERM					
101	1			ARR	
102	1	B		ARR	
103	1	B		ARR	
104	1	B		ARR	
105	1	B		ARR	
106	1	B		ARR	
107	1	B		ARR	
108	1	B		ARR	
109	1	B		ARR	
323	3	L	M	T	W
		L	M	T	W
		B	M	T	W
589	2	B		ARR	
621	2	L	M	T	W
621	2	L	M	T	W
640	3	L	M	W	F
690	4	C13	M	T	W
				9	-1230
				1	HR
693	1- 4	C		ARR	
820	3	L	M	T	W
842	3	L	M	T	W
850	3	L	M	T	W
855	3	L	M	T	W
994.03	3	D	M	T	W
994.05	3	D	M	T	W
995	2	S	M	W	F
999		C		ARR	
SUMMER 2ND TERM					
323	3	LB	M	T	W
		LB	M	T	W
648	3	LB	M	T	W
650	3	L	M	T	W
662	3	LB	M	T	W
693	1- 4	C		ARR	
770	3	LB	M	T	W
841	3	L	M	T	W
994.02	3	D	M	T	W
996	2	S	M	W	F
999		C		ARR	
AUTUMN QUARTER					
101	1	B13		ARR	
102	1	B13		ARR	
103	1	B13		ARR	
104	1	B12		ARR	
105	1	B12		ARR	
106	1	B12		ARR	
107	1	B12		ARR	
108	1	B13		ARR	
		B12		ARR	
109	1	B13		ARR	
		B12		ARR	
131	2	B13	M	T	W
		B13	M	T	W
		B12	M	T	W
		B12	M	T	W
214	5	LB	M	W	F
221	2	L		R	7 - 9
		B		ARR	
222	2	L13	M	W	ARR
		B13		ARR	
230	5	LB	M	T	W
231	2	B13	M	T	W
		B12	M	T	W
		B12	M	W	F

## Physical Education (Cont'd)

271	3	LB	T R	8	-10	
		F	T	7	-9	P
323	3	LB	M W	8	-10	
		LB	T R	8	-10	
		L	W	10		
		B	M	10	-12	
		D	W	11		
		L	M	10		
		B	W	10	-12	
		D	M	11		
		LB	M W	7	-9	P
420.02	3	B13	MTWRF	10		
420.03	2	D13	M W F	3		
420.05	3	B12	T	7	-9	P
			R	5	-7	
420.10	2	L12	M W	2	-4	
530	2	L	T R	2		
541	3	D	M W	11		
		B	F	10	-12	
		F	R	10	-12	
542	4	D13	MTWR	10		
		B13	S	9	-12	
		D12	M	10		
			F	9		
		B12	W	9	-11	
		W12	T R	8	-11	
		W12	T R	9	-12	
		W12	T R	10	-1	
		W12	T R	12	-3	
		W12	T R	1	-4	
		W12	M W	11	-2	
		W12	M W	12	-3	
		W12	M W	1	-4	
543	3	B	T R	3	-5	
		D	F	3		
589	2	B13	ARR			
		B12	ARR			
621	5	L	MTWRF	1		
647	3	B13	MTWRF	8		
		B12	M W	4	-630	
648	3	LB	T R	4	-630	
660	5	LB	MTWRF	11		
661	5	LB	MTWRF	10		
662	5	L	M W F	9		
		B	S	9	-12	
693	1-4	C	ARR			
841	3	L	M W F	1		
885	3	L	M W	430-6		MATHFWS
994.01	3	D	M W F	3		MAND
994.04	3	D	T R	4	-530	HESS
994.08	3	D	M W	7	-830P	
999		C	ARR			
WINTER QUARTER						
101	1	B	ARR			
102	1	B13	ARR			
103	1	B	ARR			
104	1	B	ARR			
105	1	B12	ARR			
106	1	B	ARR			
107	1	B	ARR			
108	1	B13	ARR			
		B12	ARR			
109	1	B	ARR			
132	2	B13	MTWRF	10	-12	
		B12	MTWRF	8	-10	
		B12	MTWRF	12	-2	
214	5	L	M W F	10	-12	
		L	M W F	1	-3	
222	2	L13	T R	11		
		B13	ARR			
		B12	T	5	-7	P
			ARR			
232	2	B13	MTWRF	8	-10	
		B12	MTWRF	8	-10	
		B12	MTWRF	12	-2	
236	3	LB	T R	8	-10	
323	3	LB	M F	8	-10	
		LB	T R	8	-10	
		LB	M W	7	-9	P
420.01	3	L13	M W	1	-3	
420.04	3	L13	MTWRF	8		
420.09	3	B12	M W	4	-6	
420.11	3	L13	T R	1	-3	
542	4	L13	MTWR	10		
		B13	S	9	-12	
		L12	M W	10		
			F	9	-11	
		W12	T R	8	-11	
		W12	T R	9	-12	
		W12	T R	10	-1	
		W12	M W	11	-2	

		W12	T R	11	-2	
		W12	M W	12	-3	
		W12	T R	12	-3	
		W12	M W	1	-4	
		W12	T R	1	-4	
589	2	B13	ARR			
		B12	ARR			
621	5	L	MTWRF	3		
640	3	L	T R	7	-830P	BENNFTT
642	5	L	MTWRF	9		HESS
		L	MTWRF	11		MOROY
650	3	LB	T R	430-6		MATHFWS
660	5	LB	MTWRF	11		
		LB	MTWRF	2		
662	5	D13	M W F	9		
		B13	S	9	-11	
693	1-4	C	ARR			
771	3	L	M W F	8		
830	3	L	M W F	10		
850	3	L	M W F	1		
994.02	3	O	M W	430-6		MATHFWS
994.06	3	D	T	2		ASHBROOK
994.07	3	D	M W F	2		ALLENBAUGH
995	2	S	F	12	-2	ASHBROOK
999		C	ARR			
SPRING QUARTER						
101	1	B13	ARR			
102	1	B13	ARR			
103	1	B13	ARR			
104	1	B12	ARR			
105	1	B12	ARR			
106	1	B12	ARR			
107	1	B13	ARR			
		B12	ARR			
108	1	B13	ARR			
		B12	ARR			
109	1	B13	ARR			
		B12	ARR			
133	2	B13	MTWRF	8	-10	
		B13	MTWRF	12	-2	
		B12	MTWRF	1	-3	
		B12	MTWRF	3	-5	
214	5	LB	T R	7	-930P	
230	5	LB	M W F	9	-11	
233	2	B13	MTWRF	1	-3	
		B12	M W	3	-5	
			T R	12	-3	
		B12	M W	1	-3	
			T R	9	-12	
236	3	LB	T R	2		
			F	2	-4	
270	2	L	T R	11		
		B	S	10	-12	
271	3	LB	T R	3	-5	
323	3	L	T R	8		
		B	T	8	-10	
		O	R	9		
		L	T	8		
		B	T R	8	-10	
		O	T	9		
		L	W	8		
		B	M	8	-10	
		O	W	9		
		L	M	8		
		B	W	8	-10	
		D	M	9		
		L	M	10		
		B	W	10	-12	
		O	M	11		
		L	W	10		
		B	M	10	-12	
		O	W	11		
		LB	T R	7	-9	P
420.02	3	B13	MTWRF	10		
420.08	3	B12	T R	4	-6	
420.09	3	B13	MTWRF	10		
420.11	3	L12	M W	12	-2	
530	2	L	T R	8		
541	3	D	M W	10		
		F	R	9	-11	
		B	F	9	-11	
543	3	LB	T R	3	-5	
			F	3		
589	2	B13	ARR			
		B12	ARR			
621	5	L	MTWRF	11		
630	2	L	W	7	-9	P
647	3	B13	MTWRF	1		
		L12	M W	4	-630	
648	3	LB	T R	4	-630	
660	5	LB	MTWRF	11		
661	5	LB	MTWRF	10		
662	5	L13	M W F	8		
		B13	S	9	-11	
		L12	MTW	1		
		B12	M	630-730P		
			R	1	-3	



693	1- 4	C		ARR		
770	3	LF	W	7 - 9 P	MAND	
				ARR 1 HR		
831	3	L	M W F	3	HESS	
842	3	L	M W F	2	MORDY	
860	5	L	M W F	430- 6	ASHBROOK	
994.03	3	D	T R	430- 6		
994.05	3	D	M W F	8		
996	2	S	M	12 - 2	MAND	
999		C	R	3	BENNFT	

## Physical Medicine

No.	Crd't.	Sec.	Day	Time	Instructor
SUMMER QUARTER					
735	6.12	K		ARR	
	18	K		ARR	
745	6.12	CB		ARR	
	18	CB		ARR	
799	18	K		ARR	
993	3- 5	BC		ARR	
AUTUMN QUARTER					
715	1	D	M W F	1 - 5	GUYTON
735	6.12	K		ARR	JOHNSON
	18	K		ARR	JOHNSON
745	6.12	CB		ARR	MELVIN
	18	CB		ARR	STOW
750	3	D	T R	3 - 5	NAGI
799	18	K		ARR	JOHNSON
993	3- 5	BC		ARR	JOHNSON
999		B		ARR	JOHNSON
WINTER QUARTER					
715	1	D	MTW F	ARR	GUYTON
735	6.12	K		ARR	JOHNSON
	18	K		ARR	
745	6.12	CB		ARR	JOHNSON
	18	CB		ARR	
770	3	DB		ARR	MELVIN
799	18	K		ARR	JOHNSON
993	3- 5	BC		ARR	NAGI
999		B		ARR	JOHNSON
SPRING QUARTER					
735	6.12	K		ARR	JOHNSON
	18	K		ARR	
736	3	D	T R	3 - 5	MACLFAN
745	6.12	CB		ARR	JOHNSON
	18	CB		ARR	
799	18	K		ARR	JOHNSON
993	3- 5	BC		ARR	JOHNSON
999		B		ARR	JOHNSON

## Physical Therapy

No.	Crd't.	Sec.	Day	Time	Instructor
SUMMER QUARTER					
586	2			ARR	
587	18			ARR	
AUTUMN QUARTER					
100	2	D	T R	9	WOODS
		D	T R	11	WOODS
480	3	L	M W F	1	WOODS
		B	M	8 -11	WOODS
		B	F	8 -11	WOODS
481	5	L	MT RF	2	PIERSON
		B	T R	8 -10	PIERSON
		B	T R	4 - 6	PIERSON
486	2	S		ARR	WOODS
487	18	K		ARR	WOODS
521	2	L	T R	1	
541	3	L	M W	8	BURNFTT

586	2	S		ARR		WOODS
587	18	K		ARR		WOODS
WINTER QUARTER						
481	5	L	MTWR	2		CHIDLEY
		B	M W	8 -10		CHIDLEY
		B	T R	8 -10		CHIDLEY
495	3	L10	T R	1		BURNFTT
		B10	W	10 -12		BURNFTT
		B10	F	9 -11		BURNFTT
		L10	T	9 -11		BURNFTT
		B10	R	9 -11		BURNFTT
522	2	L	T R	11		
530	3	L	M W F	8		JOHNSON
542	5	L	M W F	1		PIERSON
		B	M W	4 - 6		
		B	T R	4 - 6		
586	2	S		ARR		WOODS
587	18	K		ARR		WOODS
595	3	L	T R	10		PIERSON
		B		ARR		

SPRING QUARTER						
482	3	L	F	9		CHIDLEY
		B	M W	8 -10		CHIDLEY
		B	T	8 -10		CHIDLEY
499	3	L	M W	8		WOODS
		B	F	8		WOODS
520	2	L	T R	11		
543	4	L	M W	11		PIERSON
		B	M W	1 - 3		PIERSON
		B	T R	1 - 3		PIERSON
545	3	L	M W F	10		BURNFTT
585	3	L	F	11		PIERSON
		B		ARR		
586	2	S		ARR		WOODS
587	18	K		ARR		WOODS

## Physics

No.	Crd't.	Sec.	Day	Time	Instructor
SUMMER QUARTER					
111	5	L	M W	8	
		R	T R	8	
		B	T	10 -12	
		B	T	1 - 3	
		B	R	3 - 5	
		B	F	8 -10	
112	5	L	M W	10	
		R	T R	10	
		B	M	3 - 5	
		B	T	8 -10	
		B	R	1 - 3	
		B	F	10 -12	
113	5	L	M W	12	
		R	T R	12	
		B	M	8 -10	
		B	T	3 - 5	
		B	R	10 -12	
		B	F	1 - 3	
232	5	L	R	8	
		B	M W F	8	
		B	T	8 -10	
		B	T	1 - 3	
		B	R	10 -12	
		B	R	3 - 5	
233	5	L	T	10	
		R	M W F	10	
		B	T	3 - 5	
		B	R	8 -10	
		B	R	1 - 3	
507	3	10	MTWRF	8 -12	
508	3	10	MTWRF	8 -12	
509	3	D10	MTWRF	8 -12	
521	3	D	M W F	1	
551	3	D	M W F	2	
616	3	B	T R	1 - 4	
632	3	D	M W F	11	
636	3		M W F	10	
693	1-15	C		ARR	
743	3	L	M W F	11	
751	3	L	M W F	3	
801	1	S		ARR	
816	3- 5	C		ARR	
880	3		M W F	9	
999		I		ARR	

Physics    (Cont'd)

SUMMER 1ST TERM

621	3	D	MTWRF	1	
			T	12	
693	1-	8	C	ARR	
801	1	S		ARR	
999		I		ARR	

SUMMER 2ND TERM

693	1-15	C		ARR	
727	3	O	MTWRF	1	
801	1	S		ARR	
999		I		ARR	

AUTUMN QUARTER

101	5	L	MTWR	9	
111	5	L	MW	11	
		L	T R	11	
		L	MW	12	
		L	T R	12	
		L	MW	1	
		L	T R	1	
		L	MW	2	
		L	T R	2	
		B	M	8	-10
		B	M	10	-12
		B	M	12	-2
		B	M	2	-4
		B	M	4	-6
		B	M	6	-8
		B	T	8	-10
		B	T	10	-12
		B	T	12	-2
		B	T	2	-4
		B	T	4	-6
		B	T	8	-10
		B	W	10	-12
		B	W	12	-2
		B	W	2	-4
		B	W	4	-6
		B	W	6	-8
		B	R	8	-10
		B	R	10	-12
		B	R	12	-2
		B	R	2	-4
		B	R	4	-6
		B	R	6	-8
		B	F	8	-10
		B	F	10	-12
		B	F	12	-2
		B	F	2	-4
		B	F	4	-6
112	5	L	MW	4	
		B	T R	8	-10
		B	M	2	-4
		B	T	10	-12
		B	T	2	-4
		B	W	12	-2
		B	R	12	-2
		B	F	4	-6
		B	F	6	-8
113	5	L	MW	8	
		B	T R	8	
		B	M	10	-12
		B	M	12	-2
		B	T	12	-2
		B	T	2	-4
		B	W	4	-6
		B	R	4	-6
		B	F	8	-10
231	5	L	1 M WRF	8	
		B	1 T	8	-10
		L	T	11	
		L	M W F	11	
		L	T	12	
		L	M W F	12	
		L	T	1	
		L	M W F	1	
		L	T	2	
		L	M W F	2	
		B	M	8	-10
		B	M	10	-12
		B	M	12	-2
		B	M	2	-4
		B	M	4	-6
		B	T	10	-12
		B	T	2	-4
		B	W	8	-10
		B	W	10	-12
		B	W	12	-2
		B	W	2	-4
		B	W	4	-6

BROWN

		B	R	10	-12
		B	R	2	-4
		B	F	8	-10
		B	F	10	-12
		B	F	12	-2
		B	F	2	-4
		B	F	4	-6
232	5	L	R	4	
		B	M W F	4	
		B	T	6	-8
		B	T	12	-2
		B	T	4	-6
		B	W	8	-10
		B	W	2	-4
233	5	L	R	8	
		B	M W F	8	
		B	T	8	-10
		B	T	6	-8
		B	W	10	-12
		B	W	12	-2
		B	W	4	-6
		B	W	8	-10
501	3	L	M W F	11	
514	4	O	M W F	8	
		B	T	8	-11
516	3	B	T R	1	-4
521	3	O	M W F	9	
		O	M W F	1	
535	3	O	M W F	8	
541	3	O	M W F	2	
551	3	O	M W F	12	
571	3	O	M W F	4	
616	3	B	T R	1	-4
621	3	O	M W F	3	
651	3	L	M W F	10	
693	1-15	C		ARR	
715	3	L	M W F	11	
717	3	B	T R	1	-4
721	3	O	M W F	8	
733	3	O	M W F	10	
743	3	O	M W F	2	
751	3	O	M W F	1	
801	1	S	W	4	-530
		S	W	8	
816	3-5	C		ARR	
821	3	O	M W F	1	
827	3	O	M W F	3	
857	3	L	M W F	12	
876	3	O	M W F	10	
880	3	O	M W F	4	
999		I		ARR	

WINTER QUARTER

102	5	L	MTWR	2	
		B		ARR	
111	5	L	MW	8	
		L	T R	8	
		L	MW	9	
		L	T R	9	
		B	M	10	-12
		B	M	12	-2
		B	M	2	-4
		B	M	4	-6
		B	M	6	-8
		B	T	10	-12
		B	T	12	-2
		B	T	4	-6
		B	T	6	-8
		B	W	10	-12
		B	W	12	-2
		B	W	2	-4
		B	W	4	-6
		B	W	6	-8
		B	R	12	-2
		B	R	2	-4
		B	R	4	-6
		B	R	6	-8
		B	F	8	-10
		B	F	10	-12
		B	F	12	-2
		B	F	2	-4
		B	F	4	-6
112	5	L	MW	11	
		L	T R	11	
		L	MW	12	
		L	T R	12	
		L	MW	1	
		L	T R	1	
		B	M	8	-10
		B	M	10	-12
		B	M	12	-2
		B	M	2	-4
		B	M	4	-6
		B	T	10	-12
		B	T	2	-4
		B	W	8	-10
		B	W	10	-12
		B	W	12	-2
		B	W	2	-4
		B	W	4	-6
		B	T	8	-10





## Physics (Cont'd)

		B	F	2	- 4	
		B	F	4	- 6	
120	5	L	M W	3	- 5	
		B	R	3	- 5	
231	5	L	T	4	- 6	
		R	M W F	4	- 10	
		B	W	8	-12	
		B	R	8	-10	
		B	R	10	-12	
		B	R	2	- 4	
		B	F	8	-10	
		B	F	10	-12	
		B	F	12	- 2	
		B	F	2	- 4	
232	5	L	R	9	- 4	
		B	M W F	12	- 2	
		B	M	2	- 4	
		B	M	4	- 6	
		B	T	8	-10	
		B	T	10	-12	
		B	T	12	- 2	
		B	T	2	- 4	
		B	T	4	- 6	
		B	W	12	- 2	
		B	W	2	- 4	
		B	W	4	- 6	
		B	R	12	- 2	
		B	F	4	- 6	
233	5	L	T	11	- 4	
		R	M W F	11	- 4	
		L	T	1	- 4	
		R	M W F	1	- 4	
		L	T	2	- 4	
		B	M W F	2	- 4	
		B	M	8	-10	
		B	M	10	-12	
		B	M	12	- 2	
		B	M	2	- 4	
		B	M	4	- 6	
		B	T	10	-12	
		B	T	12	- 2	
		B	T	2	- 4	
		B	T	4	- 6	
		B	W	10	-12	
		B	R	8	-10	
		B	R	10	-12	
		B	R	12	- 2	
		B	R	2	- 4	
		B	R	4	- 6	
		B	F	8	-10	
		B	F	10	-12	
		B	F	12	- 2	
		B	F	2	- 4	
		L 1	M W F	8	-10	
		B 1	T	3	-10	
436	3	D	M W F	3	-10	
438	2	B	M	8	-12	
		B	W	8	-12	
		B	R	8	-12	
472	5	D	M W F	3	-10	
506	5	D	M W F	1	- 4	
516	3	B	T R	1	- 4	
521	3	D	M W F	12	- 2	
531	3	D	M W F	8	-10	
541	3	D	M W F	2	- 4	
551	3	D	M W F	8	-10	
		D	M W F	12	- 2	
		D	M W F	4	- 6	
		D	M W F	11	- 4	
571	3	D	T R	1	- 4	
616	3	B	T R	1	- 4	
632	3	D	M W F	12	- 2	
661	3	D	M W F	8	-10	
693	1-15	C	ARR			
717	3	B	T R	1	- 4	
723	3	L	M W F	8	-10	
728	3	L	M W F	3	-10	
735	3	L	M W F	10	-12	
742	3	L	M W F	2	- 4	
757	3	L	M W F	1	- 4	
761	3	L	M W F	4	- 6	
773	3	O	T R	7	- 830P	
801	1	S	ARR			
816	3- 5	C	ARR			
822	3	L	M W F	11	- 4	
829	3	L	M W F	3	-10	
835	3	L	M W F	10	-12	
848	3	L	M W F	2	- 4	
875	3	L	M W F	1	- 4	
882	3	L	M W F	4	- 6	
999		T	ARR			

## Physiological Chemistry

No.	Crd't.	Sec.	Day	Time	Instructor
SUMMER QUARTER					
793	2-15	I		ARR	
	18	I		ARR	
855	2	S		ARR	
999		I		ARR	
SUMMER 1ST TERM					
793	2-10	I		ARR	
999		I		ARR	
SUMMER 2ND TERM					
793	2-10	I		ARR	
999		I		ARR	
AUTUMN QUARTER					
311.01	5	L	W F	2 - 4	DEVOR
		B	M	2 - 5	
311.02	4	L	W F	2 - 4	DEVOR
545	2	L	T R	11	WIKOFF
601	8	L	MTWRF	1	NUENKE
		R	M	2 - 5	
		B	T R	2 - 5	
		C	W F	2 - 3	
		B	W F	2 - 5	
		C	R	2 - 3	
611	5	L	M W F	8	SPRECHER
		B	T R	2 - 5	
		B	W F	9 -12	
793	2-15	I		ARR	CORNWELL
	18	I		ARR	
821	3	L		ARR	ALBEN
835	3	B		ARR	
850	1	S		ARR	CORNWELL
855	2	S		ARR	
999		I		ARR	
WINTER QUARTER					
312.01	5	L	W F	2 - 4	DEVOR
		B	M	2 - 5	
312.02	4	L	W F	2 - 4	DEVOR
602	3	L	W R	1	NUENKE
		B		ARR	
		R	W F	2 - 5	
612	5	L	M W F	8	MEROLA
		B	T R	2 - 5	
		B	W F	9 -12	
701	6	D		ARR	KRUGFR
793	2-15	I		ARR	CORNWELL
	18	I		ARR	
822	3	L		ARR	BRIERLEY
830	3	LB		ARR	ALREN
850	1	S		ARR	CORNWELL
855	2	S		ARR	
999		I		ARR	
SPRING QUARTER					
540	6	L	F	10	DEVOR
		L	M W F	11	DEVOR
		B	T R	1 - 4	DEVOR
		B	W	8 -11	
		B	F	1 - 4	
603	1	C		ARR	NUENKE
613	5	L	M W F	8	RIESKE
		B	T R	2 - 5	RIESKE
		B	W F	9 -12	RIESKE
701	6	D		ARR	KRUGFR
725	1	L	R	11	WIKOFF
793	2-15	I		ARR	CORNWELL
	18	I		ARR	
823	3	L		ARR	BRIERLEY
850	1	S		ARR	CORNWELL
855	2	S		ARR	
898	1	S		ARR	
999		I		ARR	

## Physiological Optics

No.	Crd't.	Sec.	Day	Time	Instructor
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SUMMER QUARTER

693 1-15 C ARR  
999 I ARR

SUMMER 1ST TERM

693 1-10 C ARR  
999 I ARR

SUMMER 2ND TERM

693 1-10 C ARR  
999 I ARR

AUTUMN QUARTER

512 5 L M W F 9 KERR  
B R 11  
M R 1 - 3  
M M 3 - 5  
W 1 - 3  
B 3 - 5

520 4 L M W F 11 WILD  
B T 1 - 3  
B T 1 - 3  
B R 1 - 3  
B R 3 - 5

693 1-15 C ARR  
730 5 L M W F 9  
B M W F 10  
B T 8 -10  
B T 10 -12  
B R 8 -10  
B R 10 -12

795 1- 3 S T 9 -12  
801 5 L MTW 1 FRY  
B RF 12 - 2

810 5 L M W 3 FRY  
MTW 4 FRY  
HILL

812 5 L ARR HILL  
ARR HILL  
ARR HILL

813 5 L ARR HILL  
B ARR HILL  
I ARR HILL

WINTER QUARTER

613 5 L M W F 9 KERR  
B T 1  
B T 8 -10  
B T 10 -12  
B R 8 -10  
B R 10 -12

614 3 M W F 1 HILL  
693 1-15 C ARR  
716 5 L M W F 3 ESKRIDGE  
B T 8 -10  
B T 10 -12  
B R 8 -10  
B R 10 -12

731 5 L M W F 9 RAILFY  
B WR 12  
B L 1 - 4  
B MTW 12 - 4

795 1- 3 S WR 12 - 4  
802 5 L MTW 1 FRY  
B F 12 - 4

811 5 L MTWRF ARR FRY  
999 I ARR

SPRING QUARTER

511 5 L M W F 2 KERR  
B T 11  
B M 8 -10  
B M 10 -12  
B W 8 -10  
B W 10 -12

608 5 L T R 1  
B M 9 -12  
B R 2 - 5  
B T 2 - 5  
B R 9 -12  
B T 10 -1  
B W 9 -12

693 1-15 C ARR  
715 5 L M W F 9 ESKRIDGE  
B T 1  
B T 8 -10  
B T 10 -12  
B R 8 -10  
B R 10 -12

732 5 L M W F 9 RAILFY  
B T 8 - 1  
B R 8 - 1  
B R 9 -12

795 1- 3 S MTW 9 FRY  
803 5 L RF 2 - 4  
999 I ARR

Physiology

No. Crd't. Sec. Day Time Instructor

SUMMER QUARTER

312 5 L MT RF 8 GRUBBS  
B B 9 -11  
793 3-18 I ARR -11  
807.03 3 S ARR -11  
850 2 S ARR -11  
999 W ARR -11

AUTUMN QUARTER

311 5 L MT RF 3 ANGERER  
B B 9 -11  
B M 9 -11  
B R 9 -11  
601 5 L MT RF 8 WEISS  
B T 9 -12  
604 6 L WRF 1 LIPSKY  
T 1 - 2  
R 1 - 3  
B 2 - 5

793 3-18 I ARR  
823 5 L MT RF 9 LESSLER  
B B 9 -12  
B W 9 -12  
B W 1 - 4  
840 3 L M W 10 -12 BILLINGS  
846 5 L MTWRF 5 MYERS  
848 3 L M 1 STON  
M F 2 - 5

850 2 S ARR  
907.02 3, 5 S ARR  
999 I ARR

WINTER QUARTER

312 5 L MT RF 3 ANGERER  
B B 9 -11  
B M 9 -11  
B T 9 -11  
602 5 L MT RF 8 WEISS  
B B 9 -12  
605 6 L T 1 LIPSKY  
W F 8  
R 1 - 2  
R 2 - 5

635 7 D MT RF 2 LITTLE  
B T F ARR - 5  
793 3-18 I ARR  
825 7 D MT RF 1 LITTLE  
T F 2 - 5  
840 3 L M W 10 -12 BILLINGS  
850 2 S ARR  
907.12 3 S ARR  
999 W ARR

SPRING QUARTER

311 5 L MT RF 8 GRUBBS  
B B 9 -11  
636 8 D MT RF ARR LITTLE  
793 3-18 I ARR  
826 8 D MT RF ARR LITTLE  
830 5 L MTW F 8 NISHIKAWA  
B T 9 -12  
B M W 10 -12

840 3 L M W 10 -12 BILLINGS  
850 2 S ARR  
907.01 3 S ARR  
999 W ARR

Plant Pathology

No. Crd't. Sec. Day Time Instructor

SUMMER QUARTER

693 1- 5 I ARR  
999 I ARR

AUTUMN QUARTER

470 5 L M W F 10 DEEP  
B T R 10 -12 DEEP  
B M W F 1 TROXFL  
B T R 1 - 3 TROXFL

## Plant Pathology (Cont'd)

675	3	D	M W F	8	-10	
693	1-5	I	ARR			
874	5	L	M W	10		
		B	RF	10	-12	
879	1	S	T	4	-530	DEEP
999		I	ARR			
WINTER QUARTER						
471	3	BF	T R	10	-12	DEEP
		D	ARR			
670	5	L	M W F	8		TROXEL
		B	T R	8	-10	TROXEL
671	3	D	M W F	1	-3	
693	1-5	I	ARR			
871	3	L	M W F	8	-10	
879	1	S	T	4	-530	DEEP
999		I	ARR			
SPRING QUARTER						
470	5	L	M W F	10		DEEP
		B	T R	10	-12	DEEP
		L	M W F	1		TROXEL
		B	T R	1	-3	TROXEL
672	3	BD	M W F	1	-3	
693	1-5	I	ARR			
873	3	L	M W	8		TROXEL
		B	F	8	-10	TROXEL
879	1	S	T	4	-530	DEEP
999		I	ARR			

## Polish

No.	Crd't.	Sec.	Day	Time	Instructor
SUMMER QUARTER					
612	15	LR	MTWRF	9	
			MTWRF	10	
			MTWRF	1	
			MTWRF	2	
AUTUMN QUARTER					
601	3	R	M W F	9	KRZYŻANOWSKI
WINTER QUARTER					
602	3	R	M W F	9	KRZYŻANOWSKI
SPRING QUARTER					
603	3	R	M W F	9	KRZYŻANOWSKI

## Political Science

No.	Crd't.	Sec.	Day	Time	Instructor
SUMMER QUARTER					
100	5	L	MTWRF	8	
		L	MTWRF	9	
		L	MTWRF	10	
		L	MTWRF	11	
225	5	L	MTWRF	9	
245	5	L	MTWRF	10	
265	5	L	MTWRF	11	
545	5	L	MTWRF	8	
575	5	L	MTWRF	11	
656	5	L	MTWRF	10	
693	1-5	S	ARR		
899	3-5	S	ARR		
999		I	ARR		
SUMMER 2ND TERM					
693	1-5	S	ARR		

999 AUTUMN	QUARTER	I	ARR	
100	5	L	MTWRF	8
		L	MTWRF	9
		L	MTWRF	10
		L	MTWRF	11
		L	MTWRF	12
		L	MTWRF	1
		L	MTWRF	2
		L	MTWRF	3
		L	MTWRF	4
		L	MTWRF	7
		L	MTWRF	9
205	5	L	MTWRF	11
		L	MTWRF	1
225	5	L	MTWRF	9
		L	MTWRF	11
		L	MTWRF	2
245	5	L	MTWRF	11
		L	MTWRF	1
		L	MTWRF	3
265	5	L	MTWRF	10
		L	MTWRF	11
		L	MTWRF	1
		L	MTWRF	2
		L	MTWRF	3
505	5	L	MTWRF	2
545	5	L	MTWRF	1
565	5	L	MTWRF	9
575	5	L	MTWRF	9
594	5	L	MTWRF	3
601	5	L	MTWRF	1
610	5	L	MTWRF	11
615	5	L	MTWRF	9
626	5	L	MTWRF	2
627	5	L	MTWRF	10
630	5	L	MTWRF	9
655	5	L	MTWRF	11
656	5	L	MTWRF	2
670	5	L	MTWRF	11
676	5	L	MTWRF	1
677	3	L	M W F	10
693	1-5	S	ARR	
700	5	L	M W F	2
725	5	L	M W F	1
745	5	L	M W F	9
765	5	L	ARR	
775	5	L	M W F	11
778	3	L	M W F	1
783	3-5	S	ARR	
790	5	L	T	3 - 5
		R		4 - 5
794	3-5	S	M W F	10
826	3-5	S	W	3 - 5
846	3-5	S	F	3 - 5
876	3-5	S	M	3 - 5
899	1-5	S	ARR	
999		I	ARR	
WINTER QUARTER				
100	5	L	MTWRF	8
		L	MTWRF	9
		L	MTWRF	10
		L	MTWRF	11
		L	MTWRF	12
		L	MTWRF	1
		L	MTWRF	2
		L	MTWRF	3
		L	MTWRF	4
		L	MTWRF	7
200	5	L	MTWRF	2
205	5	L	MTWRF	9
		L	MTWRF	11
		L	MTWRF	1
225	5	L	MTWRF	9
		L	MTWRF	11
		L	MTWRF	2
245	5	L	MTWRF	11
		L	MTWRF	1
		L	MTWRF	3
265	5	L	MTWRF	10
		L	MTWRF	11
		L	MTWRF	1
		L	MTWRF	2
		L	MTWRF	3
545	5	L	MTWRF	10
562	5	L	MTWRF	11
573	3	L	M	7 - 930P
575	5	L	MTWRF	10
594	5	L	MTWRF	10
		L	MTWRF	1
611	5	L	MTWRF	1
616	5	L	MTWRF	9
627	5	L	MTWRF	9
630	5	L	MTWRF	9
631	5	L	M W F	3

ANDREWS  
STEGFNGA  
SPITZ  
FLINN  
CHAMPLIN  
HALE  
SANI  
AUMANN  
MILDER  
NEMZFR  
NEMZFR  
BURGESS  
KETTLER  
HOFSTETTER  
RIPLEY

HALE  
RICHARDSON  
AXLINE  
SPITZ  
FLINN  
SANI

HERSON

STEWART

NEMZFR

RIPLEY

STEGFNGA

SPITZ

SPITZ

LIDDLE

AUMANN

MECKSTROTH



651	5	L	MTWRF	1	
656	5	L	MTWRF	10	
658	5	L	MTWRF	11	
671	5	L	MTWRF	11	
693	1- 5	S	ARR		
700	5	L	M W F	2	
725	5	L	M W F	11	
745	5	L	M W F	2	
775	5	L	M W F	11	
778	3	L	M W F	9	
779	5	L	MTWRF	10	
783	3- 5	S	ARR		
794	3- 5	S	M	3 - 5	
			M W F	2	
801	3, 5	S	T	3 - 5	
807	3, 5	S	M	3 - 5	
813	3, 5	S	F	3 - 5	
826	3, 5	S	R	3 - 5	
866	3, 5	S	ARR		
876	3, 5	S	M	3 - 5	
899	1- 5	S	ARR		
999		I	ARR		
SPRING QUARTER					
100	5	L	MTWRF	8	
		L	MTWRF	9	
		L	MTWRF	10	
		L	MTWRF	11	
		L	MTWRF	12	
		L	MTWRF	1	
		L	MTWRF	2	
		L	MTWRF	3	
		L	MTWRF	4	
		L	T R	7 - 930P	
205	5	L	MTWRF	9	
		L	MTWRF	11	
		L	MTWRF	1	
225	5	L	MTWRF	9	
		L	MTWRF	11	
		L	MTWRF	2	
245	5	L	MTWRF	11	
		L	MTWRF	1	
		L	MTWRF	3	
265	5	L	MTWRF	10	
		L	MTWRF	11	
		L	MTWRF	1	
		L	MTWRF	2	
		L	MTWRF	3	
378	5	L	MTWRF	2	
545	5	L	MTWRF	9	
561	5	L	MTWRF	1	
565	5	L	MTWRF	10	
575	5	L	MTWRF	9	
594	5	L	MTWRF	11	
627	5	L	MTWRF	9	
630	5	L	MTWRF	11	
635	5	L	MTWRF	11	
636	5	L	MTWRF	1	
650	5	L	MTWRF	11	
651	5	L	MTWRF	11	
668	5	L	MTWRF	9	
672	5	L	MTWRF	11	
676	5	L	MTWRF	10	
677	3	L	M W F	10	
693	1- 5	S	ARR		
725	5	L	M W F	1	
731	3	L	M W F	9	
745	5	L	M W F	2	
779	5	L	ARR		
783	3- 5	S	ARR		
790	5	L	T	3 - 5	
			R	4 - 5	
794	3, 5	S	M W F	10	
			M W F	2	
801	3, 5	S	M W F	3 - 5	
807	3, 5	S	M	3 - 5	
818	3, 5	S	F	3 - 5	
826	3, 5	S	T	3 - 5	
			R	3 - 5	
846	3, 5	S	M	3 - 5	
866	3, 5	S	ARR		
899	1- 5	S	ARR		
999		I	ARR		

AXLINE  
RAINFY  
RICHARDSON  
KETTLER  
  
RIPLEY  
MECKSTROTH  
BURGFSS  
HOFSTETTER  
WILDER  
HALE  
  
NEMZER  
HOFSTETTER  
HALE  
ANDREWS  
SANI  
SANI  
KETTLER  
FLINN

ROBINSON  
BURGFSS  
  
CHAMPLIN  
FLINN  
LIDDLE  
WILDER  
STEWART  
ARDSON  
LE  
AXLINE  
STEGFNGA  
AUMANN  
KETTLER  
HOFSTETTER  
RIPLEY  
  
WILDER  
NEMZER  
RAINFY  
ROBINSON

HERSON

RIPLEY  
FLINN  
AUMANN  
SANI

SPITZ

SUMMER QUARTER

112	5, 10	R10	MTWRF	9	ARAUJO
	15	R10	MTWRF	9	ARAUJO
	5, 10	R10	MTWRF	10	ARAUJO
	15	R10	MTWRF	10	ARAUJO
	5, 10	R10	MTWRF	11	ARAUJO
	15	R10	MTWRF	11	ARAUJO
694	1- 5	C	ARR		
993	1- 5	C	ARR		
994	1- 5	C	ARR		

AUTUMN QUARTER

101	5	R	MTWRF	1	
104	5	R	MTWRF	11	
694	1- 5	C	ARR		
993	1- 5	C	ARR		
994	1- 5	C	ARR		

WINTER QUARTER

102	5	R	MTWRF	1	ARAUJO
421	5	R	MTWRF	2	ARAUJO
694	1- 5	C	ARR		
993	1- 5	C	ARR		
994	1- 5	C	ARR		

SPRING QUARTER

103	5	R	MTWRF	1	ARAUJO
694	1- 5	C	ARR		
993	1- 5	C	ARR		
994	1- 5	C	ARR		

Poultry Science

No.	Crd't.	Sec.	Day	Time	Instructor
SUMMER QUARTER					
589	5	W		ARR	
593	2, 3	K		ARR	
	5	K		ARR	
993	2, 3	K		ARR	
	5	K		ARR	
999		I		ARR	
SUMMER 1ST TERM					
593	2, 3	K		ARR	
	5	K		ARR	
993	2, 3	K		ARR	
	5	K		ARR	
999		I		ARR	
SUMMER 2ND TERM					
593	2, 3	K		ARR	
	5	K		ARR	
993	2, 3	K		ARR	
	5	K		ARR	
999		I		ARR	
AUTUMN QUARTER					
200	5	L	MTW F	8	MARSH
		B	R	8 -10	
		F		ARR	
589	5	W		ARR	
593	2	K		ARR	
	3, 5	K		ARR	
695	2	S	M	4	COOK
993	2	K		ARR	
	3, 5	K		ARR	
999		I		ARR	
WINTER QUARTER					
200	5	L	MTW F	1	MOUNTNEY
		B	R	1 - 3	
		F		ARR	
589	5	W		ARR	
593	2	K		ARR	
	3, 5	K		ARR	
640	5	L	M W F	8	MARSH
		B	T R	8 -10	
695	2	S	M	4	COOK
993	2	K		ARR	
	3, 5	K		ARR	
999		I		ARR	
SPRING QUARTER					
200	5	L	M WRF	8	MARSH

Portuguese

No.	Crd't.	Sec.	Day	Time	Instructor
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Political Science      (Cont'd)

		B	T	8	-10	
		F		ARR		
589	5	W		ARR		
593	2	K		ARR		
	3, 5	K		ARR		
611	5	L	MTWRF	10		JAAP
650	5	L	MTW F	9		MOUNTNEY
		B	M R	8	-10	
695	2	S	M	4		COOK
898	1	S		ARR		
993	2	K		ARR		
	3, 5	K		ARR		
999		I		ARR		

Preventive Medicine

No.      Crd't.      Sec.      Day      Time      Instructor

SUMMER QUARTER

753	6	D		ARR	GOODLOE
793.01	2- 5	D		ARR	ELLINGSON
	6,12	BD		ARR	ELLINGSON
	18	BD		ARR	ELLINGSON
793.02	2- 5	D		ARR	KELLFR
	6,12	BD		ARR	KELLFR
	18	BD		ARR	KELLFR
793.03	2- 5	D		ARR	SHILLITO
	6,12	BD		ARR	SHILLITO
	18	BD		ARR	SHILLITO
793.04	2- 5	D		ARR	ROBERTS
	6,12	BD		ARR	ROBERTS
	18	BD		ARR	ROBERTS
793.05	2- 5	D		ARR	KELLFR
	6,12	BD		ARR	KELLFR
	18	BD		ARR	KELLFR
793.06	2- 5	D		ARR	LEWIS
	6,12	BD		ARR	LEWIS
	18	BD		ARR	LEWIS
793.07	2- 5	D		ARR	SCHULTE
	6,12	BD		ARR	SCHULTE
	18	BD		ARR	SCHULTE
793.08	2- 5	D		ARR	KELLFR
	6,12	F		ARR	KELLFR
	18	F		ARR	KELLFR
799	18	W		ARR	ELLINGSON
850.01	1- 3	S		ARR	ELLINGSON
850.02	1- 3	S		ARR	LEWIS
999		W		ARR	ELLINGSON

SUMMER 2ND TERM

810	2	D		ARR	BILLINGS
851	3	D		ARR	KELLFR

AUTUMN QUARTER

585	3	L	M	4	- 6	KELLFR
735	2	D		9		KELLFR
753	6	D		ARR		GOODLOE
763	1	D		ARR		NICK
793.01	2- 5	D		ARR		ELLINGSON
	6,12	BD		ARR		ELLINGSON
	18	BD		ARR		ELLINGSON
793.02	2- 5	D		ARR		KELLFR
	6,12	BD		ARR		KELLFR
	18	BD		ARR		KELLFR
793.03	2- 5	D		ARR		SHILLITO
	6,12	BD		ARR		SHILLITO
	18	BD		ARR		SHILLITO
793.04	2- 5	D		ARR		ROBERTS
	6,12	BD		ARR		ROBERTS
	18	BD		ARR		ROBERTS
793.05	2- 5	D		ARR		KELLFR
	6,12	BD		ARR		KELLFR
	18	BD		ARR		KELLFR
793.06	2- 5	D		ARR		LEWIS
	6,12	BD		ARR		LEWIS
	18	BD		ARR		LEWIS
793.07	2- 5	D		ARR		SCHULTE
	6,12	BD		ARR		SCHULTE
	18	BD		ARR		SCHULTE
793.08	2- 5	D		ARR		KELLFR
	6,12	F		ARR		KELLFR
	18	F		ARR		KELLFR

799	18	W	ARR	ELLINGSON
811	2	D	ARR	SCHULTE
820	3	D	ARR	SHILLITO
845	3	D	ARR	BILLINGS
850.01	1- 3	S	ARR	ELLINGSON
850.02	1- 3	S	ARR	LEWIS
858	3	K	ARR	SCOBIE
999		W	ARR	ELLINGSON

WINTER QUARTER

618	3	L	ARR	KELLFR
735	2	D	ARR	KELLFR
753	6	D	ARR	GOODLOE
764	3	D	ARR	KELLFR
793.01	2- 5	D	ARR	ELLINGSON
	6,12	BD	ARR	ELLINGSON
	18	BD	ARR	ELLINGSON
793.02	2- 5	D	ARR	KELLFR
	6,12	BD	ARR	KELLFR
	18	BD	ARR	KELLFR
793.03	2- 5	D	ARR	SHILLITO
	6,12	BD	ARR	SHILLITO
	18	BD	ARR	SHILLITO
793.04	2- 5	D	ARR	ROBERTS
	6,12	BD	ARR	ROBERTS
	18	BD	ARR	ROBERTS
793.05	2- 5	D	ARR	KELLFR
	6,12	BD	ARR	KELLFR
	18	BD	ARR	KELLFR
793.06	2- 5	D	ARR	LEWIS
	6,12	BD	ARR	LEWIS
	18	BD	ARR	LEWIS
793.07	2- 5	D	ARR	SCHULTE
	6,12	BD	ARR	SCHULTE
	18	BD	ARR	SCHULTE
793.08	2- 5	D	ARR	KELLFR
	6,12	F	ARR	KELLFR
	18	F	ARR	KELLFR
799	18	W	ARR	ELLINGSON
821	3	D	ARR	SCHULTE
830	3	D	ARR	MCCONKEY
845	3	D	ARR	BILLINGS
850.01	1- 3	S	ARR	ELLINGSON
850.02	1, 3	S	ARR	LEWIS
856	3	D	ARR	LEWIS
858	3	K	ARR	SCOBIE
860	3	D	ARR	KELLFR
861	3	D	ARR	CARMICHAEL
999		W	ARR	ELLINGSON

SPRING QUARTER

624	2	D	ARR	KELLFR
753	6	D	ARR	GOODLOE
793.01	2- 5	D	ARR	ELLINGSON
	6,12	BD	ARR	ELLINGSON
	18	BD	ARR	ELLINGSON
793.02	2- 5	D	ARR	KELLFR
	6,12	BD	ARR	KELLFR
	18	BD	ARR	KELLFR
793.03	2- 5	D	ARR	SHILLITO
	6,12	BD	ARR	SHILLITO
	18	BD	ARR	SHILLITO
793.04	2- 5	D	ARR	ROBERTS
	6,12	BD	ARR	ROBERTS
	18	BD	ARR	ROBERTS
793.05	2- 5	D	ARR	KELLFR
	6,12	BD	ARR	KELLFR
	18	BD	ARR	KELLFR
793.06	2- 5	D	ARR	LEWIS
	6,12	BD	ARR	LEWIS
	18	BD	ARR	LEWIS
793.07	2- 5	D	ARR	SCHULTE
	6,12	BD	ARR	SCHULTE
	18	BD	ARR	SCHULTE
793.08	2- 5	D	ARR	KELLFR
	6,12	F	ARR	KELLFR
	18	F	ARR	KELLFR
799	18	W	ARR	ELLINGSON
812	2	D	ARR	KELLFR
822	3	D	ARR	SHILLITO
845	3	D	ARR	BILLINGS
850.01	1, 3	S	ARR	ELLINGSON
850.02	1, 3	S	ARR	LEWIS
858	3	K	ARR	SCOBIE
862	3	D	ARR	ROBERTS
898	1	S	ARR	
899	1- 5	S	ARR	
999		W	ARR	ELLINGSON



## Psychiatry

No.	Crd't.	Sec.	Day	Time	Instructor
SUMMER QUARTER					
707	1	L	T	ARR	
723	1	L	T	2	
724	1-2	D	T R	2	
737	6,12	K	MTWRF	ARR	
742	1	L	T	2	
747	1	D	T R	ARR	
749	1	L	T R	3	
750	1-2	D	T	4	
793	1-2	I		ARR	
	6,12			ARR	
	18			ARR	
794	1-2	I		ARR	
	6,12			ARR	
	18			ARR	
795	6			ARR	
799	18	K	MTWRF	ARR	
850	1-2	S		ARR	
999		I		ARR	
SUMMER 2ND TERM					
723	1	L	T	2	
724	1-2	D	T R	2	
742	1	L	T	2	
747	1	D	T R	ARR	
749	1	L	T R	3	
750	1-2	D	T	4	
793	1-2	I		ARR	
794	1-2	I		ARR	
850	1-2	S		ARR	
999		I		ARR	
AUTUMN QUARTER					
708	1	L	T	2	
712	2	D	T	2	
714	1	L	R	2	
718	1	L	R	3	
721	1	L	T	3	
737	6,12	K	MTWRF	ARR	
740	1	D	T	3	
745	1	L	T	4	
751	1	D	T	2	
793	1-2	I		ARR	
	6,12	I		ARR	
	18	I		ARR	
794	1-2	I		ARR	
	6,12	I		ARR	
	18	I		ARR	
795	6			ARR	
799	18	K	MTWRF	ARR	
850	1-2	S		ARR	
999		B		ARR	
WINTER QUARTER					
709	1	L	T	2	
713	2	D	T	2	
715	1	L	R	2	
719	1	L	R	3	
737	6,12	K	MTWRF	ARR	
741	1	D	T	3	
746	1	L	T	4	
793	1-2	I		ARR	
	6,12	I		ARR	
	18	I		ARR	
794	1-2	I		ARR	
	6,12	I		ARR	
	18	I		ARR	
795	6			ARR	
799	18	K	MTWRF	ARR	
850	1-2	S		ARR	
999		B		ARR	
SPRING QUARTER					
710	1	L	T	2	
711	1	L	T	3	
716	1	L	R	2	
717	2	D	T	2	
720	1	L	R	3	
722	1	L	T	3	
737	6,12	K		ARR	
793	1-2	I		ARR	
	6,12	I		ARR	
	18	I		ARR	
794	1-2	I		ARR	
	6,12	I		ARR	
	18	I		ARR	
799	18	K	MTWRF	ARR	
850	1-2	S		ARR	
999		B		ARR	

## Psychology

No.	Crd't.	Sec.	Day	Time	Instructor
SUMMER QUARTER					
100	5	L	MTWRF	8	
		L	MTWRF	9	
		L	MTWRF	10	
		L	MTWRF	11	
		L	MTWRF	12	
		L	MTWRF	1	
		L	MTWRF	2	
120	3	L	M W	8	-10
		L	M W	10	-12
		L	M W	1	-3
		L	T R	8	-10
		L	T R	10	-12
		L	T R	1	-3
		L	T R	3	-5
230	5	D	MTWRF	8	
		D	MTWRF	10	
		D	MTWRF	12	
		D	MTWRF	1	
		D	MTWRF	2	
		D	MTWRF	3	
693	1-15	B		ARR	
800	3-15	B		ARR	
811	2	S	M	7	-9 P
		S	T	12	-2 P
980	1-15	K		ARR	
999		I		ARR	
SUMMER 1ST TERM					
310	3	L	MTWRF	9	OWEN
330	3	L	MTWRF	10	NOLAN
511	3	L	MTWRF	8	
530	3	L	MTWRF	2	NOLAN
540	3	L	MTWRF	1	FLETCHER
541	3	L	MTWRF	9	OSIPOW
550	3	L	MTWRF	11	LIBBY
560	3	L	MTWRF	2	LIBBY
570	3	L	MTWRF	12	CASSIDY
600	4	L	MTWRF	10	JOHNSON
640	3	L	MTWRF	10	FLETCHER
651	3	L	MTWRF	12	HUELSMAN
681	3	L	MTWRF	11	
683	3	L	T R	2	HUELSMAN
		B	MTWRF	9	
		B	MTWRF	10	
		B	MTWRF	11	
693	1-8	B		ARR	
800	3-6	B		ARR	
803	3	L	MTWRF	11	OWEN
811	2	L	MTWRF	1	JOHNSON
831E	2	L	T R	1	WHERRY
837	3	L	MTWRF	10	JOHNSON
853	3	L	MTWRF	12	SMITH
854	3	L		ARR	
855.01	3	L	M W	1	SMITH
		B	ARR	3	
855.02	3	L	M W	3	SMITH
		B	ARR	5	
860	3	L	MTWRF	12	
880	3	LB		ARR	
882	3	L	MTWRF	11	OSIPAW
980	1-8	K		ARR	
999		I		ARR	
SUMMER 2ND TERM					
510	4	L	MTWRF	10	FOTHRINGH
		B	ARR	4 HRS	
530	3	L	MTWRF	8	MIRELS
531	3	L	MTWRF	10	MIRELS
540	3	L	MTWRF	11	WALSH
542	3	L	MTWRF	2	WALSH
551	3	L	MTWRF	2	SCHOONOVFR
671	3	L	MTWRF	9	SCHOONOVFR
680	3	L	MTWRF	9	
682	3	L	MTWRF	11	
693	1-15	B		ARR	
701	3	L	MTWRF	11	
800	3-6	B		ARR	
830	3	L	T R	1	WHERRY
		L	ARR	2 HRS	
837	3	L	MTWRF	10	
855.03	3	L	M W	1	SMITH
855.05	3	L	M W	3	SMITH
882	3	L	MTWRF	1	OSIPAW
887	2	L	M W	2	OSIPAW
AUTUMN QUARTER					
100	5	L	TWR	8	SPITZNER
		L	MTWRF	8	

### Psychology (Cont'd)

LINE	TIME	NAME	TYPE	CLASS	STATUS	REMARKS
101	5	MTWRF	10			
		MTWRF	11			
		MTWRF	12			
		MTWRF	1			
		MTWRF	2			
		MTWRF	3			
		MTWRF	4			
		T R	4 - 530	GOLDRICH		
		MTWRF	5			
		M W	7 - 930P			
		T R	7 - 930P			
		MTWRF	9			
		MTWRF	10			
		MTWRF	12			
		MTWRF	2			
		MTWRF	5			
		T R	7 - 930P			
120	3	M W	8 -10			
		M W	10 -12			
		M W	12 - 2			
		M W	2 - 4			
		M W	3 - 5			
		M W	4 - 6			
		M W	7 - 9 P			
		T R	8 -10			
		T R	10 -12			
		T R	12 - 2			
		T R	7 - 9 P			
130	1- 4	L	4	RUSSELL		
		B	ARR			
		ARR	ARR	ROBERTS		
220	5	L	M W F 4 - 530			
230	5	L	M W 3	CLARK		
		D	T R 8 - 930			
		D	T R 930-11			
		D	T R 1 - 230			
		D	T R 230- 4			
		D	M W 4	CLARK		
		D	W F 8 - 930			
		D	W F 930-11			
		D	W F 1 - 230			
		D	W F 230- 4			
300	5	L	MTWRF 8			
310	3	L	T R 1 - 230	OWEN		
311	3	L	M W F 9	GOLDRICH		
320	3	L	T R 930-11	GREENWALD		
330	3	L	M W 9	NOLAN		
		D	M 4			
		D	T 9			
		D	F 9	NOLAN		
		D	F 11			
		D	F 1			
		D	M W 9	WEAVER		
		D	ARR			
340	3	L	T R 10 -1130	CLARK		
500	2	L	T 9			
		B	T 10 -12			
		B	T 1 - 3			
		B	R 8 -10			
		B	R 10 -12			
		B	R 3 - 5			
510	4	L	M 10 -12			
		B	T R 10 -12			
		B	W F 10 -12			
		B	T R 4 - 6	FOTHFRINGH		
		L	ARR			
511	3	L	M W F 10	STAFFORD		
520	4	L	T R 11	OSTROM		
		B	ARR			
530	3	L	M W F 11	MIRELS		
531	3	L	M W F 1			
		L	M W F 1			
		B	W F 10 -12			
		B	W F 3 - 5			
540	3	L	M W F 10	WALSH		
550	3	L	M W F 10	THOMPSON		
551	3	L	M W F 330- 5	HORROCKS		
560	3	L	M W F 3	LIBBY		
570	3	L	M 7 - 930P	CASSIDY		
599	3	D	F 1 - 3	OWEN		
		L	ARR			
600	4	L	T R 10 -12	WICKFENS		
601	3	L	M W 1	SPITZNER		
		B	M 3 - 5			
		B	T 3 - 5			
		B	W 3 - 5			
		B	R 3 - 5			
610	3	L	M W 1 - 230	ERICKSON		
612.02	3	L	ARR	COOK		
620	3	L	M W F 9	JOHNSTON		
621	3	L	T R 1030-12			



		L	T	R	2	-	4		
		L	T	R	4	-	6		
		L	T	R	7	-	9	P	
130	1-5	L	ARR						ROBERTS
220	5	M	W	F	4	-	530		LIBBY
230		M	W	F	3				
		L	T	R	8	-	930		
		D	T	R	930-11				
		D	T	R	1	-	230		
		D	T	R	230-4				
		D	T	R	4	-	530		
		L	M	W	4				LIBBY
		D	W	F	4	-	930		
		D	W	F	930-11				
		D	W	F	1	-	230		
		D	W	F	230-4				
300	5	L	MTWRF	8					
		L	MTWRF	11					
		L	MTWRF	4	-	930			SPITZNER
311	3	L	T	R	8	-	930		JOHNSON
312	3	L	M	W	F	10			
320	3	L	T	R	930-11				NOLAN
330	3	L	M	W	9				
		D	R	8					
		D	R	11					
		D	F	10					
		D	F	11					
		D	F	1					
		L	M	W	10				
		D	F	10					
		D	F	11					
500	2	L	T	R	9				
		B	T	R	10	-12			
		B	T	R	1	-	3		
		B	T	R	3	-	5		
		B	R	8	-10				
		B	R	10	-12				
		B	R	1	-	3			
		B	R	3	-	5			
501	3	L	M	W	F	3			GOLDRICH
504	3	L	T	R	3	-	430		POLAND
505	3	L	M	W	F	11			
510	4	L	M	W	F	4	-	6	SCHONEMANN
		L	T	R	1	-	3		FOTHERINGH
		B	ARR						
520	4	L	T	R	11				
		B	ARR						
530	3	L	M	W	F	11			WIRELS
531	3	L	MTWRF	1					
	5	L	M	W	F	1			
		B	M	W	F	3	-	5	
540	3	L	M	W	F	4			OSIPOW
541	3	L	M	W	F	1			WALSH
550	3	L	M	W	F	1			
551	3	L	M	W	F	3	-	430	RUMA
570	3	L	M	W	F	12			CASSIDY
599	3	L	ARR						JOHNSON
611	3	L	T	R	4	-	530		STAFFORD
623	3	L	M	W	10	-1130			
630	3	L	T	R	4	-	530		OSTROM
631	3	L	M	W	1	-	230		LIBBY
650	3	L	T	R	2				STRAUB
		L	R	2	-	4			
670	3	L	M	W	F	8			KNOWFR
680	3	L	M	W	7	-	930P		R JONES
682	3	L	W	7	-	930P			
683	3	L	T	R	2	-	4		HUELSMAN
		B	M	W	F	3			
		B	M	W	F	4			
		B	M	W	F	9			
684	3	L	ARR						
693	1-15	B	ARR						
701	3	L	M	W	7	-	930P		HUELSMAN
788.04	3	L	M	W	130-3				WHERRY
794	3	L	M	W	F	10			OWEN
		L	T	R	1030-12				CLARK
		L	T	R	130-3				KETCHUM
		L	T	R	330-5				SCHONEMANN
800	3-15	B	ARR						
807	3	L	M	W	F	3			MEYER
810	5	L	M	W	F	4	-	530	WICKENS
811	2	S	M	W	7	-	9 P		WICKENS
		S	M	W	7	-	9 P		OWEN
816	3	L	M	W	F	11			BRIGGS
817	3	S	M	W	7	-	930P		JOHNSTON
		S	T	R	7	-	930P		
8190	2	S	T	R	930-11				
819F	2	S	F	2	-	4			JOHNSTON
823	3	L	T	R	830-10				STAFFORD
824.05	2	L	W	7	-	9 P			OSTROM
829	4	L	M	W	10	-12			ERICKSON
831R	2	S	M	W	7	-	930P		BRIGGS
831D	2	S	M	W	3	-	5		FRICKSON
834	3	L	M	W	F	4			WENAR
838	2	L	T	R	9	-1130			THOMPSON
841	1	B	ARR						RUMA
8420	3	S	W	4	-	6			HORROCKS
843	3	L	M	W	10	-1130			HORROCKS

844	2	L	ARR						WENAR
848	2	S	ARR						CLARK
849	2	S		R	4	-	6		CLARK
855.02	3	L	T		1	-	4		SMITH
		B	ARR						
856	1-3	S	ARR						HUELSMAN
859	2	D	M	4	-	6			R JONES
860	3	L	T	F	830-10				WIRELS
862.01	3	L	M	W	F	10			WEAVER
862.02	2	B	M	W	1	-	3		
		B	T	R	2	-	4		
		B	F	1	-	5			
866.01	2	L	M	3	-	5			SIEGFL
866.02	3	B	M	W	1	-	3		
		B	T	R	2	-	4		
		B	F	1	-	4			
867	2	S	T	10	-12				KASWAN
		S	ARR						MARKS
872	3	L	T	10	-12				BROCK
		B	ARR						
8730	3	S	T	7	-	930P			
873F	3	S	M	7	-	930P			BROCK
881	2	L	F	1	-	3			STEWART
882	3	L	M	W	F	7	-	930P	ROBINSON
883.01	3	L	M	W	F	2			FLETCHER
883.02	2	B	T	R	10	-12			
		B	T	R	1	-	3		
885	3	L	M	3	-	5			STEWART
886	2-3	L	M	9	-11				OSIPOW
		B	ARR						
		L	M	2	-	4			WALSH
		B	ARR						
887	2	S	M	9	-11				ROBINSON
		S	W	1	-	3			STEWART
		S	W	3	-	5			CAMPRELL
980	1-15	K	ARR						
999		I	ARR						
SPRING QUARTER									
100	5	L	TWR	8					JOHNSTON
		L	MTWRF	8					
		L	MTWRF	9					
		L	MTWRF	10					
		L	MTWRF	11					
		L	MTWRF	12					
		L	MTWRF	1					
		L	MTWRF	2					
		L	MTWRF	3					
		L	MTWRF	4					
		L	M	W	7	-	930P		
		L	T	R	7	-	930P		
101	5	L	MTWRF	9					
		L	MTWRF	10					
		L	MTWRF	12					
		L	MTWRF	1					
		L	MTWRF	3					
		L	MTWRF	4					
		L	MTWRF	5					
		L	T	R	7	-	930P		
120	3	L	M	W	8	-10			
		L	M	W	10	-12			
		L	M	W	12	-	2		
		L	M	W	2	-	4		
		L	M	W	4	-	6		
		L	T	R	8	-10			
		L	T	R	12	-	2		
130	1-4	L	M	10	-12				ROGERS
		L	W	3	-	5			
		L	R	3	-	5			
		L	ARR						ROBERTS
210	5	L	MTWRF	11					
220	5	L	M	W	F	4	-	530	
230	5	L	M	W	10				CLARK
		D	T	R	8	-	930		
		D	T	R	930-11				
		D	T	R	1	-	230		
		D	T	R	230-4				
		D	T	R	4	-	530		
		L	M	W	11				CLARK
		D	W	F	8	-	930		
		D	W	F	930-11				
		D	W	F	1	-	230		
		D	W	F	230-4				
300	5	L	MTWRF	8					
310	3	L	T	R	1	-	230		OWEN
312	3	L	M	W	F	10			JOHNSTON
320	3	L	T	R	930-11				OSTROM
330	3	L	M	W	9				NOLAN
		D	F	8					
		D	F	9					NOLAN
		D	F	9					
		D	F	10					
		D	F	11					
		L	M	W	9				
		D	F	8					
		D	F	9					
		D	F	12					

## Psychology (Cont'd)

		D	F	1		
500	2	L	T	9		
		B	T	3	- 3	
		R		8	- 5	
		B	R	8	-10	
		B	R	1	- 3	
		B		3	- 5	
502	3	L	M W F	9		GOLDRICH
510	4	B	M	10	-12	NOLAN
		B	T R	10	-12	
		B	W F	10	-12	
511	3	L	M W F	2		STAFFORD
512	3	L	T R	3	- 430	POTHFRINGH
520	4	B		10	-12	
		B	ARR			
530	3	L	M W F	1		MIRELS
531	3	L	M W F	2		
	5	B	M W F	2		
		B	T R	1	- 3 P	
		B	T R	3	- 5	
542	3	L	M W F	2		CAMPBELL
550	3	L		ARR		WENAR
551	3	L	W F	10	-1130	
552	2- 3	L		ARR		
599	3	B	M		- 3	JOHNSTON
		L		ARR		
620	3	L	M W F	10		
622	3	L	T R	1030-12		KETCHUM
633	2	L	T R	9		KNOWFR
640	3	L	T R	930-11		FLETCHER
651	3	L	M	7 - 930P		HUELSMAN
683	3	L	M W F	2 - 4		HUELSMAN
		B	M W F	3		
		B		ARR		
693	1-15	B		ARR		
788.01	3	L	T R		- 530	OSTROM
		B		ARR		
794	3	L	M W F	9		STAFFORD
		L	M W	330- 5		LIBBY
		L	T R	2 - 330		
800	3-15	B		ARR		
801	4	L	T R	10	-12	WICKENS
802	3	L	M W F	4		SPIETNER
803	3	L	T R	9	-1030	OWEN
808	3	L	M W F	3		MEYER
811	2	S	M	1	- 3	JOHNSON
		S		1	- 3	ERICKSON
812	1	L	F	1		BRIGGS
817	3	S	T	7 - 930P		BRIGGS
819A	2	S		3	- 5	KETCHUM
819G	2	S	W	1	- 3	
824.01	2	S		ARR		
824.02	2	S	F	10	-12	ERICKSON
828	4	L	T R	4	- 6	WHERRY
831F	2	S	M	7	- 9 P	
831G	2	S	M W	4		SCHONEMANN
836	3	L	M	9	-1130	HORROCKS
841	1	L	M	3		HORROCKS
842R	3	S	T	2 - 430		THOMPSON
842E	3	S	R	3 - 530		RIE
846	2	S	T	7	- 9 P	CLARK
848	2	S		ARR		CLARK
849	2	S	T	4	- 6	LIBRY
853	3	L	M	7 - 930P		CASSIDY
854	3	L	W	1 - 330		SMITH
855.03	3	C	T	1	- 4	SMITH
855.05	3	C		ARR		SMITH
856	1- 3	S		ARR		HUELSMAN
858	4	L	M	7	- 930P	JONES
		B		ARR		
863.01	3	L	M W F	10		KASWAN
863.02	2	B		ARR		
864.01	3	L	M W F	11		Weaver
864.02	2	B	M W	1	- 3	
		B	T R	2	- 4	
		B	F	1	- 5	
866.02	3	B		ARR		
859	2	L	M	4	- 6	JONES
867	2	S		ARR		KASWAN
872	3-12	L	T R	10		BROCK
		B		ARR		
873A	3	S	M	7	- 930P	BROCK
873C	3	S	W	7	- 930P	
874	3	L	W	7	- 930P	GREENWALT
880	3	L	T	2		STEWART
		B		ARR		
881	2	L	T R	3		MACMINN
884	3	L	MT F	1		OSIPAW
885	3	L	M	9	-11	WALSH
		L	M	1	- 3	ROBINSON
		L	M	3	- 5	STEWART
		B		ARR		

886	2- 3 L	M	10 -12	OSIPAW
	B	M	1 - 3	FLETCHER
			ARR	
887	2 S	W	4 - 6	WALSH
980	1-15 K		ARR	
999	I		ARR	

## Radiology

No.	Crd't.	Sec.	Day	Time	Instructor
SUMMER QUARTER					
740	6.12	WSC		ARR	
	18	WSC		ARR	
793	6.12	I		ARR	
	18	I		ARR	
799	18	LC		ARR	
999		I		ARR	
AUTUMN QUARTER					
740	6.12	WSC		ARR	
	18	WSC		ARR	
750	1	LOS		ARR	
793	6.12	I		ARR	
	18	I		ARR	
799	18	LC		ARR	
999		I		ARR	
WINTER QUARTER					
740	6.12	WSC		ARR	
	18	WSC		ARR	
750	1	LOS		ARR	
793	6.12	I		ARR	
	18	I		ARR	
799	18	LC		ARR	
999		I		ARR	
SPRING QUARTER					
740	6.12	WSC		ARR	
	18	WSC		ARR	
793	6.12	I		ARR	
	18	I		ARR	
799	18	LC		ARR	
999		I		ARR	

## Romance Linguistics

No.	Crd't.	Sec.	Day	Time	Instructor
AUTUMN QUARTER					
693	1-	5 C		ARR	
794	1-	5 C		ARR	
811	5	LR	MTWRF	3	GRIFFIN
WINTER QUARTER					
693	1-	5 C		ARR	
794	1-	5 C		ARR	
812	5	LR	MTWRF	3	GRIFFIN
SPRING QUARTER					
693	1-	5 C		ARR	
794	1-	5 C		ARR	

## Rural Sociology

No.	Crd't.	Sec.	Day	Time	Instructor
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SUMMER QUARTER

593 2- 5 ARR  
693 2- 5 ARR  
999 I ARR

SUMMER 1ST TERM

593 2- 5 C ARR  
693 2- 5 C ARR  
999 I ARR

SUMMER 2ND TERM

593 2- 5 C ARR  
693 2- 5 C ARR  
999 I ARR

AUTUMN QUARTER

105 5 D MTWRF 9  
O MTWRF 11  
O MTWRF 2  
310 5 D MTWRF 2  
316 5 D MT F 4  
R 4

593 2- 5 C ARR  
693 2- 5 C ARR  
996.01 2- 4 S ARR  
996.02 2- 4 S ARR  
996.03 2- 4 S ARR  
996.04 2- 4 S ARR  
996.05 2- 4 S ARR  
996.06 2- 4 S ARR  
996.07 2- 4 S ARR  
996.08 2- 4 S ARR  
996.09 2- 4 S ARR  
996.10 2- 4 S ARR  
996.11 2- 4 S ARR  
996.12 2- 4 S ARR  
999 I ARR

WINTER QUARTER

105 5 D MTWRF 9  
O MTWRF 10  
O MTWRF 11  
422 3 O M W F 2  
593 2- 5 C ARR  
600 5 D MTWRF 11  
693 2- 5 C ARR  
996.01 2- 4 S ARR  
996.02 2- 4 S ARR  
996.03 2- 4 S ARR  
996.04 2- 4 S ARR  
996.05 2- 4 S ARR  
996.06 2- 4 S ARR  
996.07 2- 4 S ARR  
996.08 2- 4 S ARR  
996.09 2- 4 S ARR  
996.10 2- 4 S ARR  
996.11 2- 4 S ARR  
996.12 2- 4 S ARR  
999 I ARR

SPRING QUARTER

105 5 D MTWRF 9  
O MTWRF 11  
O MTWRF 2  
317 3 O T R 3  
421 3 O M W F 3  
593 2- 5 C ARR  
693 2- 5 C ARR  
996.01 2- 4 S ARR  
996.02 2- 4 S ARR  
996.03 2- 4 S ARR  
996.04 2- 4 S ARR  
996.05 2- 4 S ARR  
996.06 2- 4 S ARR  
996.07 2- 4 S ARR  
996.08 2- 4 S ARR  
996.09 2- 4 S ARR  
996.10 2- 4 S ARR  
996.11 2- 4 S ARR  
996.12 2- 4 S ARR  
999 I ARR

SUMMER QUARTER

101 5 R MTWRF 9  
102 5 R MTWRF 9  
104 5 R MTWRF 10  
112 5-10 R MTWRF 900-1100  
MTWRF 1

15 R MTWRF 900-1100  
MTWRF 1  
412 5-10 R MTWRF 9  
MTWRF 11

622 5 L MTW 10  
640 5 L M W F 11  
652 5 L M W F 9  
851 3- 5 S T 2 - 4

SUMMER 1ST TERM

571 5 R MTWRF 1 - 3  
SUMMER 2ND TERM

572 5 R MTWRF 1 - 3  
AUTUMN QUARTER

101 5 R MTWRF 8  
R MTWRF 9  
R MTWRF 10  
R MTWRF 11  
R MTWRF 12  
R MTWRF 2  
R M W R 6 - 730P  
102 5 R MTWRF 9  
R MTWRF 1  
103 5 R MTWRF 11  
R MTWRF 2  
104 5 R MTWRF 9  
R MTWRF 11  
R MTWRF 2  
107 2 T R 12  
112 5-10 R MTWRF 9 -11 KRESKY  
MTWRF 1  
15 R MTWRF 9 -11 KRESKY  
MTWRF 1

5-10 D M W F 2  
15 D M W F 2  
5-10 D M W F 3  
15 D M W F 3  
408 2 T R 10  
420 5 L MTW 1  
475 3 L M W F 10  
513 5 L M W F 12  
571 5 R MTWRF 9  
572 5 R MTWRF 12  
608 5 R MTWRF 10  
609 3 R M W F 12  
630 5 L T R 11 -1230  
650 5 L M W F 11  
810 5 LR M W F 4 - 530  
826 5 L M W F 3  
832 5 L M W F 1  
851 3- 5 S T 3 - 5

WINTER QUARTER

101 5 R MTWRF 10  
R MTWRF 12  
R MTWRF 2  
102 5 R MTWRF 8  
R MTWRF 9  
R MTWRF 10  
R MTWRF 11  
R MTWRF 1  
R M W R 6 - 730P  
103 5 R MTWRF 9  
R MTWRF 1  
104 5 R MTWRF 11  
R MTWRF 2  
108 2 R T R 12  
130 5 R MTWRF 2  
405 3 R M W F 11  
R M W F 2  
406 2 R T R 11  
R T R 2  
412 5-10 R MTWRF 9 KRESKY  
MTWRF 11

421 5 L MTW 1  
476 3 LR M W F 10 KRESKY  
LR M W F 12  
514 5 R MTWRF 9  
571 5 R MTWRF 1  
572 5 R MTWRF 12  
610 3 R M W F 12  
635 5 L T R 11 -1230  
651 5 L M W F 11  
812 5 L M W R 3  
820 3 L M W F 1  
833 5 L M W R 1

Russian

No. Crd't. Sec. Day Time Instructor

Russian (Cont'd)

841	5	L	M W F	4	
852	3- 5	S	T	3	- 5
OULANOFF					
SPRING QUARTER					
101	5	R	MTWRF	9	
		R	MTWRF	2	
102	5	R	MTWRF	10	
		R	MTWRF	12	
		R	MTWRF	2	
103	5	R	MTWRF	9	
		R	MTWRF	10	
		R	MTWRF	11	
		R	MTWRF	1	
		R	M W R	6	- 730P
104	5	R	MTWRF	9	
		R	MTWRF	2	
109	2	R	T R	12	
405	3	R	M W F	11	
406	2	R	T R	11	
407	3	R	M W F	12	
408	2	R	T R	12	
477	3	LR	M W F	10	
		LR	M W F	12	
572	5	R	MTWRF	1	
612	15	LR	MTWRF	9	
			MTWRF	10	
			MTWRF	1	
615	5	R	MTWRF	9	
622	5	L	MTWR	1	
640	5	LR	T R	11	-1230
652	5	L	M W F	11	
813	5	L	M W R	1	
829	5	L	M W F	3	
842	5	L	M W F	2	
850	3- 5	S	T	3	- 5

Serbo-Croatian

No.	Crd't. Sec.	Day	Time	Instructor
AUTUMN QUARTER				
604	3	R	M W F	10
620	5	L	M W F	2
WINTER QUARTER				
605	3	R	M W F	10
621	5	L	M W F	2
SPRING QUARTER				
606	3	R	M W F	10

Slavic Languages and Literatures

No.	Crd't. Sec.	Day	Time	Instructor
SUMMER QUARTER				
693	2-10	I	ARR	
870	3- 5	S	M	2 - 4
881	2- 5	I	ARR	
981	2-10	I	ARR	
999		I	ARR	
AUTUMN QUARTER				
230	5	L	MTWR	12
693	2-10	I	ARR	
783	3- 5	I	ARR	
862	5	L	M W R	1
870	3- 5	S	T	3 - 5
880	3	L	R	9 -11
881	2- 5	I		
981	2-10	I		

999		I		
WINTER QUARTER				
693	2-10	I		ARR
783	3- 5	I		ARR
860	3	L	M W F	3
871	3- 5	S	T	3 - 5
881	2- 5	I		ARR
981	2-10	I		ARR
999		I		ARR
SPRING QUARTER				
519	5	L	MTWR	2
693	2-10	I		ARR
783	3- 5	I		ARR
870	3- 5	S	T	3 - 5
881	2- 5	I		ARR
884	5	LR	M W F	3
981	2-10	I		ARR
999		I		ARR

Social Work

No.	Crd't. Sec.	Day	Time	Instructor
SUMMER QUARTER				
323	5	D	T R	1 - 3
325	5	D	T R	10 -12
327	5	D	T R	8 -10
380	5	L	M W F	10
		B	T	8 -10
		B	T R	8 -10
423	5	D	T R	1 - 3
425	5	D	T R	10 -12
427	5	D	T R	8 -10
489	3- 5	S	F	10 -12
		S	F	1 - 3
		K		ARR
493	1- 5	I		ARR
693	1- 5	I		ARR
640	1- 5	S		ARR
715	6-15	K		ARR
998		I		ARR
999		I		ARR
AUTUMN QUARTER				
323	5	D	T R	1 - 3
325	5	D	T R	8 -10
327	5	D	T R	10 -12
380	5	L	M W F	10
		B	T	8 -10
		B	T	10 -12
		B	R	8 -10
		B	R	10 -12
423	5	D	T R	1 - 3
425	5	D	T R	10 -12
427	5	D	T R	8 -10
489	3- 5	K		ARR
		S	F	10 -12
		S	F	1 - 3
493	1- 5	I		ARR
503	5	D	M W F	7 - 9
505	3	D	M W F	9
509	3	D	M W F	11
615	3- 8	LSK		ARR
620	3	D	M	1 - 4
631	3	D	MT	830-10
641	4	D	MT	10 -12
	2	D	MT	10 -12
	4	D	MT	10 -12
693	1- 5	I		ARR
715	6-15	K		ARR
730	4	D	RF	1 - 3
750	3	D	RF	830-10
	3	D	RF	1030-12
760	3	D	RF	830-10
770	3	D	RF	1030-12
794	1- 4	S		ARR
880	3	D	R	3 - 5
				ARR 1 HR
899	1- 5	S		ARR
994	2- 4	S		ARR
998		I		ARR
999		I		ARR
WINTER QUARTER				
323	5	D	T R	1 - 3



325	5	D	T R	8	-10
327	5	O	T R	10	-12
380	5	L	M W F	10	
		B	T	8	-10
		B	T	10	-12
		B	R	8	-10
		B	R	10	-12
423	5	O	T R	1	- 3
425	5	O	T R	10	-12
427	5	O	T R	8	-10
489	3- 5	K	ARR		
		S	F	10	-12
		S	F	1	- 3
493	1- 5	I	ARR		
503	5	O	M W	7	- 930P
507	3	O	M W F	9	
509	3	O	M W F	11	
615	3- 8	K	ARR		
621	3	O	MT	1	- 230
632	3	O	MT	830-10	
651	3	O	MT	10	-1130
			MT	10	-1130
			MT	230- 4	
			MT	230- 4	
661	2		MT	10	-1130
671	3	O	MT	10	-1130
693	1- 5	I	ARR		
715	6-15	K	ARR		
726	3	O	RF	1	- 230
751	3	O	RF	830-10	
			RF	1030-12	
761	3	O	RF	830-10	
771	3	O	RF	1030-12	
794	1- 4	S	ARR		
881	3	O	R	3	- 5
899	1- 5	S	ARR		
994	2- 4	S	ARR		
998		I	ARR		
999		I	ARR		

SPRING QUARTER

323	5	D	T R	1	- 3
325	5	O	T R	8	-10
327	5	O	T R	10	-12
380	5	L	M W F	10	
		B	T	8	-10
		B	T	10	-12
		B	R	8	-10
		B	R	10	-12
423	5	O	T R	1	- 3
425	5	O	T R	10	-12
427	5	O	T R	8	-10
489	3- 5	K	ARR		
		S	F	10	-12
		S	F	1	- 3
493	1- 5	I	ARR		
503	5	O	M W	7	- 930P
505	3	O	M W F	9	
509	3	O	M W F	11	
600	3	O	F	10	-12
603	2	O	F	10	-12
615	5	K	ARR		
633	3	O	MT	1	- 230
653	3	O	MT	830-10	
			MT	230- 4	
663	3	O	MT	230- 4	
673	3	O	MT	830-10	
680	5	L	MT	10	-12
		B	ARR		
693	1- 5	I	ARR		
715	7	K	ARR		
720	3	O	RF	1	- 230
794	1- 4	S	ARR		
882	3	O	R	3	- 5
			ARR	1 HR	
899	1- 5	S	ARR		
994	2- 4	S	ARR		
998		I	ARR		
999		I	ARR		

Sociology

No. Crd't. Sec. Day Time Instructor

SUMMER QUARTER

101	5	D	MTWRF	8	
		D	MTWRF	9	
		D	MTWRF	10	

		D	MTWRF	11	
		D	MTWRF	1	
		R	T R		700- 910P
201	5	D	MTWRF	10	
		D	MTWRF	11	
202	5	D	MTWRF	8	
		D	MTWRF	10	
		D	MTWRF	11	
		D	MTWRF	1	
220	5	L	MTWRF	9	
		L	MTWRF	11	
250	5	L	M W F	10	
		B	T R	10	-12
330	3	O	M W F	8	
		O	M W F	11	
		O	M W F	1	
410	5	D	MTWRF	10	
430	4	L	MTWR	8	
		L	MTWR	1	
463	4	D	MTWR	1	
480	3	D	M W F	9	
		D	M W F	11	
		D	M W F	1	
		D	M W F	9	
650	3				
693.01	1- 4	S	ARR		
693.02	1- 4	S	ARR		
693.03	1- 4	S	ARR		
693.04	1- 4	S	ARR		
693.05	1- 4	S	ARR		
693.06	1- 4	S	ARR		
693.07	1- 4	S	ARR		
693.08	1- 4	S	ARR		
693.09	1- 4	S	ARR		
693.10	1- 4	S	ARR		
693.11	1- 4	S	ARR		
693.12	1- 4	S	ARR		
998		I	ARR		
999.01		I	ARR		
999.02		I	ARR		
999.03		I	ARR		
999.04		I	ARR		
999.05		I	ARR		
999.06		I	ARR		
999.07		I	ARR		
999.08		I	ARR		
999.09		I	ARR		
999.10		I	ARR		
999.11		I	ARR		
999.12		I	ARR		

SUMMER 1ST TERM

434	4	D	MTWRF	9	
			ARR	1 HR	
470	4	D	MTWRF	1	
			ARR	1 HR	
590	4	D	MTWRF	9	
			ARR	1 HR	
693.01	1- 4	C	ARR		
693.02	1- 4	C	ARR		
693.03	1- 4	C	ARR		
693.04	1- 4	C	ARR		
693.05	1- 4	C	ARR		
693.06	1- 4	C	ARR		
693.07	1- 4	C	ARR		
693.08	1- 4	C	ARR		
693.09	1- 4	C	ARR		
693.10	1- 4	C	ARR		
693.11	1- 4	C	ARR		
693.12	1- 4	C	ARR		
895.09	3	S	MTWRF	11	
998		I	ARR		
999.01		I	ARR		
999.02		I	ARR		
999.03		I	ARR		
999.04		I	ARR		
999.05		I	ARR		
999.06		I	ARR		
999.07		I	ARR		
999.08		I	ARR		
999.09		I	ARR		
999.10		I	ARR		
999.11		I	ARR		
999.12		I	ARR		

SUMMER 2ND TERM

207	3	D	MTWRF	9	EYNON
			ARR	1 HR	
405	3	D	M W F	10	WARSHAY
492	3	D	M W F	9	MUNSON
			-11		
693.01	1- 4	C	ARR		
693.02	1- 4	C	ARR		
693.03	1- 4	C	ARR		
693.04	1- 4	C	ARR		
693.05	1- 4	C	ARR		
693.06	1- 4	C	ARR		
693.07	1- 4	C	ARR		
693.08	1- 4	C	ARR		

## Sociology (Cont'd)

693.09	1-4	C	ARR		
693.10	1-4	C	ARR		
693.11	1-4	C	ARR		
693.12	1-4	C	ARR		
895.09	1-5	S	MTWRF	BULLOCK	
998	1		ARR		
999.01	1		ARR		
999.02	1		ARR		
999.03	1		ARR		
999.04	1		ARR		
999.05	1		ARR		
999.06	1		ARR		
999.07	1		ARR		
999.08	1		ARR		
999.09	1		ARR		
999.10	1		ARR		
999.11	1		ARR		
999.12	1		ARR		
AUTUMN QUARTER					
101	5	L	M W F	11	CUBER
		R	T R	9	
		R	T R	10	
		R	T R	11	
		L	M W F	2	CUBER
		R	T R	1	
		R	T R	2	
		R	T R	3	
		L	M W F	4	HALL
		R	T R	1	
		R	T R	2	
		R	T R	3	
		D	T R	7	- 910P
201	5	L	M W F	8	
		R	T R	8	
		R	T R	9	
		R	T R	10	
202	5	L	T R	11	LOWE
		R	M W F	8	
		R	M W F	9	
		R	M W F	10	
		R	M W F	11	
		D	MTWRF	2	
207	3	D	M W F	12	EYNON
220	5	L	M W F	1	CORWIN
		R	T R	1	
		R	T R	2	
		R	T R	3	
250	5	D	M W F	2	CLEAVER
		B	M W	1	- 3
		B	T R	1	- 3
280	3	D	M W F	1	NOEL
		D	M W F	3	NOEL
290	5	D	MTWRF	1	CLEAVER
		B	ARR		
		D	MTWRF	2	JONASSEN
		B	ARR		
330	3	D	M W F	8	
		D	M W F	9	
		D	M W F	12	
		D	M W F	2	
405	3	D	M W F	1	GUARANTEIL
410	5	D	MTWRF	10	DINITZ
		D	MTWRF	1	RECKLESS
411	5	D	MTWRF	11	EYNON
430	4	D	T R	1	CLARKE
		R	M W	1	
		R	M W	2	
		R	M W	3	
440	3	D	M W F	2	FLETCHER
463	4	D	MTWR	10	BLAIN
		D	MTWR	4	HELFRICH
464	3	D	M W F	3	HELFRICH
467	3	D	M W F	2	KNUDSEN
470	4	D	MTWR	10	THOMAS
		D	MTWR	1	WARSHAY
480	3	D	M W F	9	MARTIN
		D	M W F	2	VANDERZAND
488	5	D	MTWRF	3	VAUGHAN
560	4	D	MTWR	1	CARD
590	4	D	MTWR	11	JONASSEN
615	3	S	W	3	- 5
650	3	D	M W F	10	RECKLESS
661	4	D	MTWR	9	SCHWIRIAN
680	4	D	MTWR	11	
693.08	1-4	C	M	7	- 9 P
693.12	1-4	C	ARR		
704.01	3	S	T	4	- 630
752	3	S	M W F	9	NAGI
868	3	S	M	1	- 3
895.01	5	S	M W	4	- 6
895.03	5	S	T R	4	- 6
895.04	5	S	M W F	4	- 6
895.06	5	S	M W F	4	- 6

895.07	5	S	T R	730-9	
895.09	5	S	M W F	11	
895.10	5	S	M W F	4	- 6
895.12	5	S	T R	2	- 4
899	1-5	S	ARR		SCHWIRIAN
998	1		ARR		
999.01	1		ARR		
999.02	1		ARR		
999.03	1		ARR		
999.04	1		ARR		
999.05	1		ARR		
999.06	1		ARR		
999.07	1		ARR		
999.08	1		ARR		
999.09	1		ARR		
999.10	1		ARR		
999.11	1		ARR		
999.12	1		ARR		
WINTER QUARTER					
101	5	L	M W F	11	
		R	T R	9	
		R	T R	10	
		R	T R	11	
		L	M W F	1	
		R	T R	1	
		R	T R	2	
		R	T R	3	
		R	T R	4	
		R	T R	5	
		L	M W F	2	
		R	T R	12	
		R	T R	1	
		R	T R	2	
		R	T R	3	
		L	M W F	4	
		R	T R	1	
		R	T R	2	
		R	T R	3	
		D	T R	7	- 9 P
201	5	L	M W F	8	
		R	T R	8	
		R	T R	9	
		R	T R	10	
202	5	L	T R	11	
		R	M W F	8	
		R	M W F	9	
		R	M W F	10	
		R	M W F	11	
		D	MTWRF	2	
		B	M W F	1	- 3
		B	T R	1	- 3
280	3	D	M W F	1	NOEL
		D	M W F	3	NOEL
290	5	D	MTWRF	1	CLEAVER
		B	ARR		
		D	MTWRF	2	JONASSEN
		B	ARR		
330	3	D	M W F	8	
		D	M W F	9	
		D	M W F	12	
		D	M W F	2	
405	3	D	M W F	1	GUARANTEIL
410	5	D	MTWRF	10	DINITZ
		D	MTWRF	1	RECKLESS
411	5	D	MTWRF	11	EYNON
430	4	D	T R	1	CLARKE
		R	M W	1	
		R	M W	2	
		R	M W	3	
440	3	D	M W F	2	FLETCHER
463	4	D	MTWR	10	BLAIN
		D	MTWR	4	HELFRICH
464	3	D	M W F	3	HELFRICH
467	3	D	M W F	2	KNUDSEN
470	4	D	MTWR	10	THOMAS
		D	MTWR	1	WARSHAY
480	3	D	M W F	9	MARTIN
		D	M W F	2	VANDERZAND
488	5	D	MTWRF	3	VAUGHAN
560	4	D	MTWR	1	CARD
590	4	D	MTWR	11	JONASSEN
615	3	S	W	3	- 5
650	3	D	M W F	10	RECKLESS
661	4	D	MTWR	9	SCHWIRIAN
680	4	D	MTWR	11	
693.08	1-4	C	M	7	- 9 P
693.12	1-4	C	ARR		
704.01	3	S	T	4	- 630
752	3	S	M W F	9	NAGI
868	3	S	M	1	- 3
895.01	5	S	M W	4	- 6
895.03	5	S	T R	4	- 6
895.04	5	S	M W F	4	- 6
895.06	5	S	M W F	4	- 6



693.01	1-4	C			ARR	
693.02	1-4	C			ARR	
693.03	1-4	C			ARR	
693.04	1-4	C			ARR	
693.05	1-4	C			ARR	
693.06	1-4	C			ARR	
693.07	1-4	C			ARR	
693.08	1-4	C			ARR	
693.09	1-4	C			ARR	
693.10	1-4	C			ARR	
693.11	1-4	C			ARR	
693.12	1-4	C			ARR	
704.02	3		M	W	F	10
859	3					ARR
868	3					ARR
895.01	5	S	M	W		2 - 4
895.03	5	S		T	R	4 - 6
895.04	5	S	M		F	4 - 6
895.08	5	S		T	R	2 - 4
895.09	5	S	M	W	F	11
895.11	5	S	M	W		4 - 6
895.12	5	S		T	R	2 - 4
899	1-5	S				ARR
998		I				ARR
999.01		I				ARR
999.02		I				ARR
999.03		I				ARR
999.04		I				ARR
999.05		I				ARR
999.06		I				ARR
999.07		I				ARR
999.08		I				ARR
999.09		I				ARR
999.10		I				ARR
999.11		I				ARR
999.12		I				ARR

SPRING QUARTER

101	5	L	M W F	11		CUBER
		R	T R	9		
		R	T R	10		
		R	T R	11		
		L	M W F	12		
		R	T R	12		
		R	T R	1		
		R	T R	2		
		R	T R	3		
		R	T R	4		
		R	T R	5		
		L	M W F	2		CUBER
		R	T R	12		
		R	T R	1		
		R	T R	2		
		R	T R	3		
		L	M W F	4		
		R	T R	1		
		R	T R	2		
		R	T R	3		
		D	T R	7	- 910P	
201	5	L	M W F	8		
		R	T R	8		
		R	T R	9		
		R	T R	10		
202	5	L	T R	11		
		R	M W F	8		
		D	M W F	9		
		R	M W F	11		
		R	M W F	1		
		R	M W F	3		
		D	MTWRF	2		
		D	T R	7	- 9 P	
204	4	D	MTWRF	1		THOMAS
207	3	D	M W F	10		EYNON
208	5	D	MTWRF	2		CLATW
220	5	L	M W F	1		THOMAS
		R	T R	1		
		R	T R	2		
		R	T R	3		
250	5	D	M W F	2		CLEAVE
		B	M W	1	- 3	
		B	T R	1	- 3	
280	3	D	M W F	2		NOEL
290	5	D	MTWRF	9		JONAS
		B	ARR			
		D	MTWRF	1		HALL
		B	ARR			
330	3	D	M W F	8		
		D	M W F	12		
		D	M W F	3		
		D	MTWRF	4		
395	3	D	M W F	9		SCHWIT
405	3	D	M W F	11		GUAR
		D	M W F	1		GUAR
410	5	D	MTWRF	11		RECKL
		D	MTWRF	1		ONIT
411	5	D	MTWRF	11		EYNON
430	4	L	T R	1		KNUD

		R	M W	1	
		R	M W	2	
		R	M W	3	
462	3	D	M W F	9	
463	4	D	MTWR	4	
464	3	D	MTWR	12	HELFRICH
465	4	D	MTWR	9	CLARKE
467	3	D	M W F	11	DYNES
470	4	D	MTWR	10	WARSHAY
480	3	D	M W F	2	VANDERZAAN
		D	M W F	3	NOEL
488	5	D	MTWRF	3	VAUGHAN
693.01	1	4 S	ARR		
693.02	1	4 S	ARR		
693.03	1	4 S	ARR		
693.04	1	4 S	ARR		
693.05	1	4 S	ARR		
693.06	1	4 S	ARR		
693.07	1	4 S	ARR		
693.08	1	4 S	ARR		
693.09	1	4 S	ARR		
693.10	1	4 S	ARR		
693.11	1	4 S	ARR		
693.12	1	4 S	ARR		
704.03	3	D	M W F	10	BULLOCK
752	3	C	M W F	10	BULLOCK
805	3	D	M	3	- 530
118	3	S	F	3	GUARANTEED
859	3	S	ARR		RECKLESS
868	3	S	T	3	- 5
891	3	S	T	4	- 6
894	3	D	M W F	3	
895.03	5	S	T R	4	- 6
895.05	5	S	M W	4	- 6
895.07	5	S	T R	4	- 6
895.08	5	S	M W	4	- 6
895.09	5	S	M W F	4	- 6
895.10	5	S	M W	4	- 6
895.11	5	S	T R	4	- 6
895.12	5	C	W F	ARR	
899	1- 5	C	ARR		
998		I	ARR		
999.01	1- 5	I	ARR		
999.02	1- 5	I	ARR		
999.03	1- 5	I	ARR		
999.04	1- 5	I	ARR		
999.05	1- 5	I	ARR		
999.06	1- 5	I	ARR		
999.07	1- 5	I	ARR		
999.08	1- 5	I	ARR		
999.09	1- 5	I	ARR		
999.10	1- 5	I	ARR		
999.11	1- 5	I	ARR		
999.12	1- 5	I	ARR		

## Spanish

No.	Crd't.	Sec.	Day	Time	Instructor
SUMMER QUARTER					
101	5	R	MTWRF	8	
		R	MTWRF	9	
		R	MTWRF	10	
102	5	R	MTWRF	8	
		R	MTWRF	11	
103	5	R	MTWRF	8	
		R	MTWRF	9	
104	5	R	MTWRF	8	
		R	MTWRF	9	
105	5	R	MTWRF	9	
112	5, 10	R	MTWRF	8	
	15	R	MTWRF	8	
	5, 10	R	MTWRF	10	
	15	R	MTWRF	10	
	5, 10	R	MTWRF	1	
	15	R	MTWRF	1	
421	5	LR	MTWRF	9	
571	5	R	MTWRF	10	
		R	MTWRF	11	
572	3	R	M W F	11	
		R	M W F	12	
573	3	R	M W F	12	
		R	M W F	1	
607	5	LR	MTWRF	9	
623	5	LR	MTWRF	10	
694	1- 5	C	ARR	ARR	BARCOCK
993	1- 5	C	ARR	ARR	FROSCHE

### Spanish (Cont'd)

994 SUMMER	1- 5 1ST TERM	C I			ARR ARR
605	3	LR	MTWRF		9
631	3	LR	MTWRF		11
831	3	S	T R		10
832 AUTUMN	2- 5 QUARTER	S		T R	10
101	5	R	MTWRF		8
		R	MTWRF		9
		R	MTWRF		10
		R	MTWRF		11
		R	MTWRF		12
		R	MTWRF		1
		R	MTWRF		2
		R	MTWRF		3
		R	MTWRF		4
102	5	R	MTWRF		8
		R	MTWRF		9
		R	MTWRF		10
		R	MTWRF		11
		R	MTWRF		12
		R	MTWRF		1
		R	MTWRF		2
		R	MTWRF		3
		R	MTWRF		4
103	5	R	MTWRF		8
		R	MTWRF		9
		R	MTWRF		10
		R	MTWRF		11
		R	MTWRF		12
		R	MTWRF		1
		R	MTWRF		2
		R	MTWRF		3
		R	MTWRF		4
104	5	R	MTWRF		8
		R	MTWRF		9
		R	MTWRF		10
		R	MTWRF		11
		R	MTWRF		1
		R	MTWRF		2
		R	MTWRF		3
		R	MTWRF		4
105	5	R	MTWRF		9
		R	MTWRF		10
		R	MTWRF		1
		R	MTWRF		2
401	3	R	M W F		11
402	3	R	M W F		10
		R	M W F		1
		R	M W F		2
404	5	R	MTWRF		12
		R	MTWRF		1
421	5	LR	MTWRF		10
		LR	MTWRF		2
422	5	LR	MTWRF		9
571	5	R	MTWRF		10
		R	MTWRF		11
572	3	R	M W F		11
		R	M W F		12
573	3	R	M W F		12
		R	M W F		1
605	3	R	M W F		10
609	5	R	MTWRF		12
620	5	LR	MTWRF		1
628	3	LR	M W F		11
694	1- 5	C			ARR
723	5	LR	MTWRF		9
783	3- 5				ARR
811	3	LR	M W F		2
822	5	LR			ARR
831	2- 5	S	T		2
885	5	LR	MTWRF		10
993	1- 5	C			ARR
994	1- 5	C			ARR
999		I			ARR

WINTER QUARTER		1		ARR	
101	5	R	MTWRF	8	
		R	MTWRF	9	
		R	MTWRF	10	
		R	MTWRF	11	
		R	MTWRF	12	
		R	MTWRF	1	
102	5	R	MTWRF	2	
		R	MTWRF	3	
		R	MTWRF	4	
		R	MTWRF	8	
		R	MTWRF	9	

			R	MTWRF	10	
			R	MTWRF	11	
			R	MTWRF	12	
			R	MTWRF	1	
			R	MTWRF	2	
			R	MTWRF	3	
			R	MTWRF	4	
103	5		R	MTWRF	8	
			R	MTWRF	9	
			R	MTWRF	10	
			R	MTWRF	11	
			R	MTWRF	12	
			R	MTWRF	1	
			R	MTWRF	2	
			R	MTWRF	3	
			R	MTWRF	4	
104	5		R	MTWRF	8	
			R	MTWRF	9	
			R	MTWRF	10	
			R	MTWRF	11	
			R	MTWRF	12	
			R	MTWRF	1	
			R	MTWRF	2	
			R	MTWRF	3	
			R	MTWRF	4	
105	5		R	MTWRF	9	
			R	MTWRF	10	
			R	MTWRF	1	
			R	MTWRF	2	
	5		R	MTWRF	12	
162	5		R	MTWRF	2	
271	5		R	MTWRF	2	
401	3		R	M W F	1	
403	3		R	M W F	9	
			R	M W F	11	
			R	M W F	2	
			R	M W F	3	
404	5		R	MTWRF	10	
			R	MTWRF	11	
421	5	LR	R	MTWRF	10	
		LR	R	MTWRF	1	
423	5	LR	R	MTWRF	1	
571	5		R	MTWRF	10	
			R	MTWRF	11	
572	3		R	M W F	11	
			R	M W F	12	
573	3		R	M W F	12	
			R	M W F	1	
605	3		R	M W F	11	
607	5		R	MTWRF	12	
609	5		R	MTWRF	3	
625	3		R	M W F	10	
626	5		R	MTWRF	9	
694	1-	5 C		ARR	ARR	
783	3-	5		ARR	ARR	
812	3	LR		M W F	2	
820	3	LR		M W F	4	
824	5	LR		M W F	1	
832	2-	5 S		T	2	
993	1-	5 C		ARR	ARR	
994	1-	5 C		ARR	ARR	
999				ARR	ARR	
						ANGELO BABCOCK
						IGLESIAS IGLESIAS PARDO FROSCH FROSCH
						GRIFFIN PARDO BABCOCK LEVIST

SPRING QUARTER		MARK	
101	5	R	MTWRF 8
		R	MTWRF 9
		R	MTWRF 10
		R	MTWRF 11
		R	MTWRF 12
		R	MTWRF 1
		R	MTWRF 2
		R	MTWRF 3
102	5	R	MTWRF 4
		R	MTWRF 8
		R	MTWRF 9
		R	MTWRF 10
		R	MTWRF 11
		R	MTWRF 12
		R	MTWRF 1
		R	MTWRF 2
103	5	R	MTWRF 3
		R	MTWRF 4
		R	MTWRF 8
		R	MTWRF 9
		R	MTWRF 10
		R	MTWRF 11
		R	MTWRF 12
		R	MTWRF 1
104	5	R	MTWRF 2
		R	MTWRF 3
		R	MTWRF 4
		R	MTWRF 9
		R	MTWRF 10
		R	MTWRF 11
		R	MTWRF 12
		R	MTWRF 1
		R	MTWRF 2
		R	MTWRF 3
		R	MTWRF 4



105	5	R	MTWRF	4	
		R	MTWRF	9	
		R	MTWRF	10	
		R	MTWRF	12	
163	5	R	MTWRF	1	
401	3	R	M W F	1	
402	3	R	M W F	9	
		R	M W F	10	
		R	M W F	11	
404	5	R	MTWRF	10	
		R	MTWRF	11	
421	5	LR	MTWRF	10	
		LR	MTWRF	2	
422	5	LR	MTWRF	11	
571	5	R	MTWRF	10	
		R	MTWRF	11	
572	3	R	M W F	11	
		R	M W F	12	
573	3	R	M W F	12	
		R	M W F	1	
607	5	R	MTWRF	12	
621	5	R	MTWRF	9	
627	5	LR	MTWRF	10	FROSCH
694	1- 5	C	ARR	ARR	
783	3- 5	C	ARR	ARR	
813	3	LR	M W F	2	GRIFFIN
815	3- 5	LR	M W F	1	PARDO
821	3	LR	M W F	12	PARDO
833	3- 5	S	T	2 - 4	FROSCH
993	1- 5	C	ARR	ARR	
994	1- 5	C	ARR	ARR	
999		I	ARR	ARR	

410	4	ORB	MTW	10	-12	NIELSEN
648	3	L	W F	4	- 6	
				ARR	1 HR	
		L	MTWRF	11		
693	1- 5	C		ARR	1 HR	
705	3	D	M W F	8	-10	LAWSON
816A	3- 5	S	T R	10	-12	LAWSON
821A	3- 5	S	M W	10	-12	RILEY
940F	3- 5	S	T R	3	- 5	MOSER
999		I	ARR			
SUMMER 2ND TERM						
110	5	DR	MTWRF	1	- 3	RIEKF
135	3	LB	MTWRF	10		GOFF
				ARR	1 HR	
510	5	DR	MTWRF	10	-12	LYNCH
611	3	L	T R	10	-12	BROOKS
		B		ARR	2 HRS	
621	5	D	MTWRF	8	-10	GOLDEN
693	1- 5	C	ARR	ARR		
811A	3- 5	S	T R	10	-12	GOLDEN
821R	3- 5	S	M W	1	- 3	LYNCH
821C	3- 5	S	T R	8	-10	MALL
826A	3- 5	S	M W	10	-12	BROOKS
840	3	B	W F	4	- 6	
				ARR	1 HR	
890	3	DB	MTWRF	12		KNOWFR
				ARR	1 HR	
940G	3	S	M	3	- 5	GOFF
999		I	ARR	ARR		
AUTUMN QUARTER						
35	5	B	MTWRF	8		GOFF BLACK
		B	MTWRF	9		GOFF
40.01	* 3	B	MTWRF	12		GOFF
40.02	* 3	B	MTWRF	12		MOSER
40.03	* 3	B	MTWRF	12		STROMSTA
40.04	* 3	B	MTWRF	12		
40.05	* 3	B	T	7	- 930P	GOFF
105	5	DR	MTWRF	8		DOUGLAS
		DR	MTWRF	9		DOUGLAS
		DR	MTWRF	10		DOUGLAS
		DR	MTWRF	12		DOUGLAS
		DR	MTWRF	1		DOUGLAS
		DR	MTWRF	2		DOUGLAS
		DR	MTWRF	3		DOUGLAS
		DR	MTWRF	4		DOUGLAS
		DR	T R	7	- 930P	DOUGLAS
110	5	DR	MTWRF	8		
		DR	MTWRF	9		
		DR	MTWRF	10		
		DR	MTWRF	1		
		DR	MTWRF	2		
		DR	MTWRF	3		
		DR	MTWRF	4		
		DR	T R	7	- 930P	
115	3	D	M W F	3		KOFNIG
120	3	DR	M W F	8		RILEY
		DR	M W F	9		RILEY
		DR	M W F	12		RILEY
		DR	M W F	1		LAWSON
125	3	D	M W F	8		
135	3	LB	M W F	10		
		LB	M W F	11		BLACK
		LB	M W F	12		
		LB	M W F	1		
		LB	M W F	2		GOFF
		LB	M W F	4		
201	5	D	MTWRF	1		BROOKS
205A	1	B	T R	8		KNOWER
205B	1	B	M	4		LAWSON
205C	1	B	T	3	- 5	REYNOLDS
205D	1	B	T	1	- 3	NIELSON
			R	4		NIELSON
209	3	D	M W F	10		KNOWER
217	5	D	MTWRF	10		LAWSON
221	5	DR	MTWRF	9		REYNOLDS
225	5	D	T R	10		REYNOLDS
				9	-11	FOTHERINGH
229	3	DRB	M W F	1		LYNCH
		DRB	M W F	2		LYNCH
		DRB	M W F	3		BRITTEN
235	3	L	T R	2		BRITTEN
		R	M	8		BRITTEN
		R	M	4		BRITTEN
		R	T	3		BRITTEN
		R	R	3		BRITTEN
		R	F	4		BRITTEN
240	3	L	M W F	1		STROMSTA
245	3	L	M W F	10		BLACK
305	5	DR	MTWRF	9		LAWSON
315	3	D	M W F	1		DOUGLAS
325	3	D	M W F	9		
410	4	DR	M W F	10		RILEY
440	5	L	MTWRF	3		STROMSTA
505	5	L	MTWRF	2		RIEKF
510	5	DRB	M W	3	- 5	NIELSON
			F	3		

## Speech

No.	Crd't.	Sec.	Day	Time	Instructor
SUMMER QUARTER					
35	5	B	MTWRF	9	GOFF
40.01	- 3	B	MTWRF	12	GOFF
40.02	- 3	B	MTWRF	12	MOSER IRWI
40.03	- 3	B	MTWRF	12	
40.04	- 3	B	MTWRF	12	
105	5	DR	MTWRF	8	
		DR	MTWRF	9	
		DR	MTWRF	10	
		DR	MTWRF	11	
		DR	MTWRF	12	
		DR	T R	7	- 930P
110	5	DR	MTWRF	9	
201	5	D	M W F	9	REYNOLDS
221	5	DR	MTWRF	10	REYNOLDS
235	3	L	M W F	9	BRITTEN
240	3	L	M W F	1	STROMSTA
245	3	L	M W F	2	BLACK
440	5	DR	MTWRF	8	STROMSTA
505	5	DR	MTWRF	11	RIEKF
540	3	L	MTWRF	9	BRANNON
		C	ARR	1 HR	
632	3	LR	M W F	9	
636	3	L	M W F	1	
640	5	L	MTWRF	1	MOSER
656	5	K	MTWRF	10	IRWIN
693	1- 5	C	ARR	ARR	
755A	3	K	MTWRF	12	MOSER
755B	3	K	MTWRF	12	
755C	3	K	MTWRF	12	
783	3-15	C	ARR	ARR	
794	3- 5	C	ARR	ARR	
836	5	D	MTWRF	9	
944A	3-15	K	ARR	ARR	MOSER
844B	3-15	K	ARR	ARR	
844C	3-15	K	ARR	ARR	
852	3- 5	LF	M W F	11	BLACK
894	3- 5	D	ARR	ARR	
950H	3	S	ARR	ARR	
999		I	ARR	ARR	
SUMMER 1ST TERM					
110	5	DR	MTWRF	1	- 3
205R	1	B	ARR	3	- 5
205C	1	B	T	3	- 5
205D	1	B	T R	1	- 3
229	3	DRB	M W F	8	-10
250	3	L	MTWRF	3	
			ARR	1 HR	

35	5	B	MTWRF	8		GOFF BLACK
		B	MTWRF	9		GOFF
40.01	* 3	B	MTWRF	12		GOFF
40.02	* 3	B	MTWRF	12		MOSER
40.03	* 3	B	MTWRF	12		STROMSTA
40.04	* 3	B	MTWRF	12		
40.05	* 3	B	T	7	- 930P	GOFF
105	5	DR	MTWRF	8		DOUGLAS
		DR	MTWRF	9		DOUGLAS
		DR	MTWRF	10		DOUGLAS
		DR	MTWRF	12		DOUGLAS
		DR	MTWRF	1		DOUGLAS
		DR	MTWRF	2		DOUGLAS
		DR	MTWRF	3		DOUGLAS
		DR	MTWRF	4		DOUGLAS
		DR	T R	7	- 930P	DOUGLAS
110	5	DR	MTWRF	8		
		DR	MTWRF	9		
		DR	MTWRF	10		
		DR	MTWRF	1		
		DR	MTWRF	2		
		DR	MTWRF	3		
		DR	MTWRF	4		
		DR	T R	7	- 930P	
115	3	D	M W F	3		KOFNIG
120	3	DR	M W F	8		RILEY
		DR	M W F	9		RILEY
		DR	M W F	12		RILEY
		DR	M W F	1		LAWSON
125	3	D	M W F	8		
135	3	LB	M W F	10		
		LB	M W F	11		BLACK
		LB	M W F	12		
		LB	M W F	1		
		LB	M W F	2		GOFF
		LB	M W F	4		
201	5	D	MTWRF	1		BROOKS
205A	1	B	T R	8		KNOWER
205B	1	B	M	4		LAWSON
205C	1	B	T	3	- 5	REYNOLDS
205D	1	B	T	1	- 3	NIELSON
			R	4		NIELSON
209	3	D	M W F	10		KNOWER
217	5	D	MTWRF	10		LAWSON
221	5	DR	MTWRF	9		REYNOLDS
225	5	D	T R	10		REYNOLDS
				9	-11	FOTHERINGH
229	3	DRB	M W F	1		LYNCH
		DRB	M W F	2		LYNCH
		DRB	M W F	3		BRITTEN
235	3	L	T R	2		BRITTEN
		R	M	8		BRITTEN
		R	M	4		BRITTEN
		R	T	3		BRITTEN
		R	R	3		BRITTEN
		R	F	4		BRITTEN
240	3	L	M W F	1		STROMSTA
245	3	L	M W F	10		BLACK
305	5	DR	MTWRF	9		LAWSON
315	3	D	M W F	1		DOUGLAS
325	3	D	M W F	9		
410	4	DR	M W F	10		RILEY
440	5	L	MTWRF	3		STROMSTA
505	5	L	MTWRF	2		RIEKF
510	5	DRB	M W	3	- 5	NIELSON
			F	3		

## Speech (Cont'd)

525	4	DB	M W F	2	MONAGHAN
540	5	L	MTWRF	1	BRANNON
550	3	L	M W F	2	MOSER
616	5	DR	MTWRF	12	RIEKE
621	5	D	MTWRF	3	GOLDEN
626	5	DB	MTWR	8	MONAGHAN
644	3	L	R	7 - 930P	
693	1-5	C	ARR		
755A	3	K	MTWRF	12	MOSER
755B	3	K	MTWRF	12	MOSER
755C	3	K	MTWRF	12	MOSER
783	3-15	C	ARR	4 HRS	
794	3-5	C	ARR		
806A	3-5	D	M W F	1	LYNCH
811B	3-5	S	M	9 -11	GOLDEN
816B	3-5	S	M	1 - 3	
821D	3-5	S	T	9 -11	LYNCH
821E	3-5	S	R	9 -11	
826B	3-5	S	R	1 - 3	KNOWER
844A	3-15	K	ARR		MOSER
844B	3-15	K	ARR		MOSER
844C	3-15	K	ARR		MOSER
899	3-5	S	M	7 - 9 P	
940A	3-5	S	M	4 - 6	BLACK
940B	3-5	S	ARR		
950B	1-5	S	R	4 - 6	BRANNON
950C	3	S	ARR		GOFF
950E	1-5	S	T	4 - 6	BLACK
990	3	DB	M W F	8	KNOWER
994	3-5	D	ARR		
999		I	ARR		
WINTER QUARTER					
35	5	B	MTWRF	9	GOFF
40.01	3	B	MTWRF	12	GOFF
40.02	3	B	MTWRF	12	IRWIN
40.03	3	B	MTWRF	12	STROMSTA
40.04	3	B	MTWRF	12	
40.05	3	B	T R	7 - 930P	GOFF
105	5	DR	MTWRF	8	DOUGLAS
		DR	MTWRF	9	DOUGLAS
		DR	MTWRF	10	DOUGLAS
		DR	MTWRF	12	DOUGLAS
		DR	MTWRF	1	DOUGLAS
		DR	MTWRF	2	DOUGLAS
		DR	MTWRF	3	DOUGLAS
		DR	MTWRF	4	DOUGLAS
110	5	DR	T R	7 - 930P	DOUGLAS
		DR	MTWRF	8	
		DR	MTWRF	9	
		DR	MTWRF	10	
		DR	MTWRF	1	
		DR	MTWRF	2	
115	3	D	M W F	3	FINNEY
120	3	DR	M W F	8	KOENIG
		DR	M W F	9	RILEY
		DR	M W F	12	RILEY
125	3	O	M W F	8	LAWSON
135	3	LB	M W F	10	IRWIN, MOSER
		LB	M W F	12	BLACK
		LB	M W F	1	
		LB	M W F	2	GOFF
		LB	M W F	4	
201	5	D	MTWRF	1	BROOKS
205A	1	B	T R	8	KNOWER
205B	1	B	M	4	LAWSON
205C	1	B	T	3 - 5	REYNOLDS
205D	1	B	T	1 - 3	NIELSEN
		R		4	
209	3	D	M W F	10	KNOWER
213	5	D	MTWRF	9	LAWSON
217	5	D	MTWRF	10	
221	5	DR	MTWRF	9	REYNOLDS
		DR	MTWRF	10	REYNOLDS
225	5	D	MTWRF	3	RIEKE
229	3	DRB	M W F	1	LYNCH
		DRB	M W F	2	LYNCH
		DRB	M W F	3	LYNCH
235	3	L	T R	2	BRITTIN
		R	M	8	BRITTIN
		R	M	4	BRITTIN
		R	T	3	BRITTIN
		R	W	3	BRITTIN
		R	R	3	BRITTIN
		R	F	4	BRITTIN
		R	R	3	LEWIS
240	3	L	M W F	1	STROMSTA
245	3	L	M W F	2	BLACK
250	3	L	M W F	11	GOFF

305	5	DR	MTWRF	9	RIEKE
315	3	D	M W F	1	DOUGLAS
325	3	D	M W F	9	
410	4	DRB	M W F	10	RILEY
510	5	DRB	M W F	3 - 5	NIELSEN
			F	3	
626	5	DB	MTWR	8	MONAGHAN
632	3	L	M W F	8	
		B	ARR		
636	3	L	T R	4 - 530	BRANNON
640	5	L	MTWRF	2	MOSER
656	5	K	MTWRF	9	IRWIN
693	1-5	I	ARR		
705	3	D	M W F	12	
735	3	L	M W F	11	STROMSTA
745	3	L	R	7 - 930P	
755A	3	K	MTWRF	12	MOSER
755B	3	K	MTWRF	12	MOSER
755C	3	K	MTWRF	12	MOSER
777	3	L	M W	3	GOFF
			ARR	1 HR	
783	3-15	C	ARR		
794	3-5	C	ARR		
801	3	D	M W F	3	LYNCH
806B	3-5	D	M W F	4	LYNCH
811C	3-5	S	R	1 - 3	RIEKE
816C	3-5	S	M	1 - 3	LAWSON
821F	3-5	S	T	9 -11	MONAGHAN
821G	3-5	S	R	9 -11	
826C	3-5	S	W	1 - 3	FOTHFRINGH
844A	3-15	K	ARR		MOSER
844B	3-15	K	ARR		MOSER
844C	3-15	K	ARR		MOSER
848	3	L	T	2 - 5	
856	5	L	MTWRF	10	BLACK
940C	3-5	S	M W	4 - 6	STROMSTA
950D	2	S	F		BRANNON
950E	1-5	S	ARR		IRWIN
994	3-5	D	ARR		
999		C	ARR		
SPRING QUARTER					
35	5	B	MTWRF	9	GOFF
40.01	3	B	MTWRF	12	GOFF
40.02	3	B	MTWRF	12	IRWIN
40.03	3	B	MTWRF	12	STROMSTA
40.04	3	B	MTWRF	12	
40.05	3	B	T R	7 - 930P	GOFF
105	5	DR	MTWRF	8	DOUGLAS
		DR	MTWRF	9	DOUGLAS
		DR	MTWRF	10	DOUGLAS
		DR	MTWRF	12	DOUGLAS
		DR	MTWRF	1	DOUGLAS
		DR	MTWRF	2	DOUGLAS
		DR	MTWRF	3	DOUGLAS
		DR	MTWRF	4	DOUGLAS
110	5	DR	T R	7 - 930P	DOUGLAS
		DR	MTWRF	8	
		DR	MTWRF	9	
		DR	MTWRF	10	
		DR	MTWRF	1	
		DR	MTWRF	2	
115	3	D	M W F	3	KOENIG
120	3	DR	M W F	8	RILEY
		DR	M W F	9	RILEY
		DR	M W F	12	RILEY
125	3	D	M W F	8	LAWSON
135	3	LB	M W F	10	
		LB	M W F	12	BLACK
		LB	M W F	1	
		LB	M W F	2	GOFF
		LB	M W F	4	
201	5	D	MTWRF	1	BROOKS
205A	1	B	T R	8	KNOWER
205B	1	B	M	4	LAWSON
205C	1	B	T	3 - 5	REYNOLDS
205D	1	B	T	1 - 3	NIELSEN
		R		3	
209	3	D	M W F	10	DOUGLAS
213	5	D	MTWRF	9	GOLDEN
217	5	D	MTWRF	10	
221	5	DR	MTWRF	9	REYNOLDS
225	5	D	MTWRF	2	RIEKE
229	3	DRB	M W F	1	LYNCH
		DRB	M W F	2	LYNCH
		DRB	M W F	3	LYNCH
235	3	L	T R	2	BRITTIN
		R	M	8	BRITTIN
		R	M	4	BRITTIN
		R	T	3	BRITTIN
		R	R	3	BRITTIN
		R	F	4	BRITTIN
240	3	L	M W F	1	STROMSTA
245	3	L	M W F	1	BLACK
250	3	L	M W F	2	GOFF
305	5	DR	MTWRF	10	LAWSON



325	3	D	M W F	9	
420	3	D	M W F	1	
440	5	L	MTWRF	3	
515	3	DB	M W F	2	
520	3	O	M W F	9	
525	4	OB	M W F	2	
540	5	L	MTWRF	1	
550	3	L	M W F	11	
611	3	DRB	M W F	10	
616	5	DR	MTWRF	12	
626	5	DB	MTWR	8	
632	3	L	M W F	10	
636	3	L	M W F	8	
652	5	L	MTWRF	9	
693	1- 5	C		ARR	
715	3	D	M W F	3	
725	3	DRB	T R	3	
		O	W	7	-10 P
755A	3	K	MTWRF	12	
755B	3	K	MTWRF	12	
755C	3	K	MTWRF	12	
778	3	D	M	3	
				ARR	
783	3-15	C		ARR	
794	3- 5	C		ARR	
806C	3- 5	O	M W F	4	
811D	3- 5	S	M	1	- 3
			W	1	- 3
816D	3- 5	S	W	1	- 3
821H	3- 5	S	T	9	-11
821I	3- 5	S	R	9	-11
826D	3- 5	S	R	1	- 3
832	5	LB	T R	4	- 530
			S	8	-12
840	3	L	T	7	- 930P
844A	3-15	K		ARR	
844B	3-15	K		ARR	
844C	3-15	K		ARR	
880F	3- 5	O	T R	3	- 5
899	3- 5	S		ARR	
940D	3- 5	S	M W	4	- 6
940E	3- 5	S	F	4	- 6
950I	1- 5	S		ARR	
994	3- 5	O		ARR	
999		C		ARR	

FOTTERINGH  
STROMSTA  
BROOKS  
MONAGHAN  
LYNCH  
BRANNON  
MOSER  
BROOKS  
RIEKE  
MONAGHAN  
  
BRANNON  
IRWIN  
  
NIELSEN  
  
MOSER  
MOSER  
MOSER  
GOFF

MONAGHAN  
LAWSON  
  
GOLDEN  
LYNCH  
RILEY  
DOUGLAS  
BLACK

CREPEAU  
  
IRWIN  
BRANNON

799	18	KS	ARR		MARABLE
850	3, 5	S	ARR		ZOLLINGER
999		BS	ARR		JESSFPH
SUMMER 1ST TERM					
850	3, 5	S	ARR		
999		B	ARR		
SUMMER 2ND TERM					
850	3, 5	S	ARR		
999		B	ARR		
AUTUMN QUARTER					
715	6,12	LK	ARR		CERILLI
736	5, 6	K	ARR		KILMAN
	11	K	ARR		
737	1	K	ARR		
760	6,12	B	ARR		
	18	B	ARR		
793.01	3- 5	BS	ARR		
	6,12	BS	ARR		ZOLLINGER
	18	BS	ARR		
793.02	3- 5	B	ARR		
	6,12	B	ARR		
793.03	3- 5	B	ARR		
	6,12	B	ARR		
793.04	3- 5	BS	ARR		
	6	BS	ARR		
793.05	3- 5	BS	ARR		
	6,12	BS	ARR		
793.06	3- 5	BS	ARR		
	6,12	BS	ARR		
793.08	3- 5	BS	ARR		
	6,12	BS	ARR		
	18	BS	ARR		
794.01	6	K	ARR		ZOLLINGER
794.04	6	K	ARR		
794.05	6	K	ARR		
794.06	6	K	ARR		
794.07	6	K	ARR		
794.08	6,12	K	ARR		
794.09	6,12	K	ARR		
	18	K	ARR		
794.10	6,12	K	ARR		ZOLLINGER
	18	K	ARR		
794.11	6	K	ARR		
794.12	6	K	ARR		
794.13	6	K	ARR		
798	18	K	ARR		PACE
799	18	KS	ARR		MARABLE
850	3, 5	S	ARR		ZOLLINGER
999		BS	ARR		JESSFPH
WINTER QUARTER					
715	6,12	LK	ARR		CERILLI
736	5, 6	K	ARR		KILMAN
	11	K	ARR		KILMAN
737	1	LK	ARR		
760	6,12	B	ARR		
	18	B	ARR		
793.01	3- 5	BS	ARR		ZOLLINGER
	6,12	BS	ARR		
	18	BS	ARR		
793.02	3- 5	B	ARR		
	6,12	B	ARR		
793.03	3- 5	B	ARR		
	6,12	B	ARR		
793.04	3- 5	BS	ARR		
	6	BS	ARR		
793.05	3- 5	BS	ARR		
	6,12	BS	ARR		
793.06	3- 5	BS	ARR		
	6,12	BS	ARR		
793.08	3- 5	BS	ARR		
	6,12	BS	ARR		
	18	BS	ARR		
794.01	6	K	ARR		ZOLLINGER
794.04	6	K	ARR		
794.05	6	K	ARR		
794.06	6	K	ARR		
794.07	6	K	ARR		
794.08	6,12	K	ARR		
794.09	6,12	K	ARR		
	18	K	ARR		
794.10	6,12	K	ARR		
	18	K	ARR		
794.11	6	K	ARR		
794.12	6	K	ARR		
794.13	6	K	ARR		
798	18	K	ARR		PACE
799	18	K	ARR		MARABLE
850	3, 5	S	ARR		ZOLLINGER
999		B	ARR		JESSFPH
SPRING QUARTER					
715	6,12	LK	ARR		CERILLI
736	5, 6	K	ARR		KILMAN

No.	Crd't.	Sec.	Day	Time	Instructor
SUMMER QUARTER					
715	6,12	LK		ARR	CERILLI
736	5, 6	K		ARR	KILMAN
	11	K		ARR	KILMAN
737	1	LK		ARR	HAMELBERG
760	6,12	B		ARR	CURTISS
	18	B		ARR	CURTISS
793.01	3- 5	BS		ARR	ZOLLINGER
	6,12	BS		ARR	ZOLLINGER
	18	BS		ARR	ZOLLINGER
793.02	3- 5	B		ARR	
	6,12	B		ARR	
793.03	3- 5	B		ARR	
	6,12	B		ARR	
793.04	3- 5	BS		ARR	
	6	BS		ARR	
793.05	3- 5	BS		ARR	
	6,12	BS		ARR	
793.06	3- 5	BS		ARR	
	6,12	BS		ARR	
793.08	3- 5	BS		ARR	
	6,12	BS		ARR	
	18	BS		ARR	
794.01	6	K		ARR	ZOLLINGER
794.04	6	K		ARR	
794.05	6	K		ARR	
794.06	6	K		ARR	
794.07	6	K		ARR	
794.08	6,12	K		ARR	
794.09	6,12	K		ARR	
	18	K		ARR	
794.10	6,12	K		ARR	
	18	K		ARR	
794.11	6	K		ARR	
794.12	6	K		ARR	
794.13	6	K		ARR	
798	18	K		ARR	PACE

Surgery

No.	Crd't.	Sec.	Day	Time	Instructor
SUMMER QUARTER					
715	6,12	LK		ARR	CERILLI
736	5, 6	K		ARR	KILMAN
	11	K		ARR	KILMAN
737	1	LK		ARR	HAMELBERG
760	6,12	B		ARR	CURTISS
	18	B		ARR	CURTISS
793.01	3- 5	BS		ARR	ZOLLINGER
	6,12	BS		ARR	ZOLLINGER
	18	BS		ARR	ZOLLINGER
793.02	3- 5	B		ARR	
	6,12	B		ARR	
793.03	3- 5	B		ARR	
	6,12	B		ARR	
793.04	3- 5	BS		ARR	
	6	BS		ARR	
793.05	3- 5	BS		ARR	
	6,12	BS		ARR	
793.06	3- 5	BS		ARR	
	6,12	BS		ARR	
793.08	3- 5	BS		ARR	
	6,12	BS		ARR	
	18	BS		ARR	
794.01	6	K		ARR	ZOLLINGER
794.04	6	K		ARR	
794.05	6	K		ARR	
794.06	6	K		ARR	
794.07	6	K		ARR	
794.08	6,12	K		ARR	
794.09	6,12	K		ARR	
	18	K		ARR	
794.10	6,12	K		ARR	
	18	K		ARR	
794.11	6	K		ARR	
794.12	6	K		ARR	
794.13	6	K		ARR	
798	18	K		ARR	PACE

Surgery      (Cont'd)

	11	K	ARR	
737	1	LK	ARR	HAMELBOURG
760	6,12	B	ARR	CURTISS
	18	B	ARR	
793.02	3- 5	B	ARR	ZOLLINGER
	6,12	B	ARR	
793.03	3- 5	B	ARR	
	6,12	B	ARR	
793.04	3- 5	BS	ARR	
	6	BS	ARR	
793.05	3- 5	BS	ARR	
	6,12	BS	ARR	
793.06	3- 5	BS	ARR	
	6,12	BS	ARR	
793.08	3- 5	BS	ARR	
	6,12	BS	ARR	
	18	BS	ARR	
794.01	6	K	ARR	ZOLLINGER
794.04	6	K	ARR	
794.05	6	K	ARR	
794.06	6	K	ARR	
794.07	6	K	ARR	
794.08	6,12	K	ARR	
794.09	6,12	K	ARR	
	18	K	ARR	
794.10	6,12	K	ARR	
	18	K	ARR	
794.11	6	K	ARR	
794.12	6	K	ARR	
794.13	6	K	ARR	
798	18	K	ARR	PACE
799	18	KS	ARR	MARABLE
850	3, 5	S	ARR	ZOLLINGER
999		BS	ARR	JESSEPH

Theatre

No.	Crd't.	Sec.	Day	Time	Instructor
SUMMER QUARTER					
165	5	L	M W F	10	GLANCY
		R	T	9	
		R	T	10	
		R	T	1	
		R	R	9	
		R	R	10	
		R	R	1	
265	1	B	ARR		EMERY
270	5	D	MTWR	9	COBES
		B	ARR		COBES
280	3	DRB	T R	11 - 1	R SPANARFL
565	5	DRB	MTWRF	10	LEWIS
673	3	L	M W F	11	MCDOWELL
693	1- 5	C	ARR		
794	3- 5	C	ARR		
970A	2- 5	S	M W	1 - 3	MCDOWELL
970B	2- 5	S	T R	1 - 3	MORROW
994	3- 5	C	ARR		
994A	3- 5	D	MTWRF	12	GLANCY
999		C	ARR		
SUMMER 1ST TERM					
265	1	B	ARR		EMERY
280	3	DRB	MTWR	2 - 4	R SPANARFL
693	1- 5	C	ARR		
693A	3	D	M W F	11 -1230	J SPANARFL
780	3	DRB	M W F	3 - 5	BOWEN
794	3- 5	C	ARR		
865	5	DRB	MTWRF	10 -12	RITTER
994	3- 5	C	ARR		
999		C	ARR		
SUMMER 2ND TERM					
265	1	B	ARR		EMERY
275	3	D	M W F	2 - 4	RITTER
693	1- 5	C	ARR		
794	3- 5	C	ARR		
880A	3- 5	D	M W	3 - 5	
994	3- 5	C	ARR		
999		C	ARR		
AUTUMN QUARTER					
165	5	L	M W F	10	GLANCY

			R	T	8	
			R	T	9	
			R	T	10	
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			R	R	9	
			R	R	10	
			R	R	1	
			R	R	2	
			R	R	3	
			L	M W F	2	CREPEAU
			R	T	8	
			R	T	9	
			R	T	10	
			R	T	1	
			R	T	2	
			R	T	3	
			R	R	8	
			R	R	9	
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			R	R	2	
			R	R	3	
			L	M W F	3	
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			R	T	3	
			R	R	8	
			R	R	9	
			R	R	10	
			R	R	1	
			R	R	2	
			R	R	3	
265	1	B		ARR		EMERY
270	5	D	MTWR	9		COBES
		B		ARR		COBES
275	3	O	M W F	11		RITTER
280	3	DRB	T R	11	- 1	SPANABEL,R
		DRB	T R	3	- 5	SPANABEL,R
285	5	L	MTWRF	11		MORROW
366	5	D	M W F	10		EMERY
		B		ARR		EMERY
565	5	DRB	MTWRF	10		LEWIS
671	3	L	M W F	11		MCDOWELL
693	1- 5	C		ARR		
693B	3	D	M W	10		COBES
		R		ARR		COBES
693C	5	O	MTWRF	11		GLANCY
693D	2	LB	T R	11	- 1	EMERY
693E	3	O	T R	10	-1130	SPANABEL,J
770	3	D	M W F	9		
794	3- 5	C		ARR		
870	3	DR	T R	10	-12	MORROW
880B	2- 5	O	M W	3	- 5	
880C	2- 5	O	T R	3	- 5	
970C	2- 5	S	M W	1	- 3	MCDOWELL
970D	2- 5	S	T R	1	- 3	RITTER
970E	2- 5	S	M W	3	- 5	CREPEAU
994	3- 5	D		ARR		
999		C		ARR		
WINTER QUARTER						
165	5	L	M W F	10		BOWEN
		R	T	8		
		R	T	9		
		R	T	10		
		R	T	1		
		R	T	2		
		R	T	3		
		R	R	8		
		R	R	9		
		R	R	10		
		R	R	1		
		R	R	2		
		R	R	3		
		L	M W F	1		RITTER
		R	T	8		
		R	T	9		
		R	T	10		
		R	T	1		
		R	T	2		
		R	T	3		
		R	R	8		
		R	R	9		
		R	R	10		
		R	R	1		
		R	R	2		
		R	R	3		
		L	M W F	3		CREPEAU
		R	T	9		
		R	T	10		
		R	T	1		
		R	T	2		
		R	T	3		



		R	R	9	
		R	R	10	
		R	R	1	
		R	R	2	
		R	R	3	
265	1	B		ARR	EMERY
270	5	D	MTWR	9	COBES
		B		ARR	COBES
280	3	DRB	T R	10	R SPANARFL
		DRB	T R	1	R SPANARFL
365	5	D	M W F	9	RITTER
366	5	D	M W F	10	J SPANARFL
		B		ARR	J SPANARFL
565	5	DRB	MTWRF	10	LEWIS
673	3	L	M W F	11	MORROW
693	1- 5	C		ARR	
693F	3	D	M W F	11	EMERY
693G	3	DB	T R	3	GLANCY
693H	3	D	M W F	10	COBES
693J	3	LB	T R	10	J SPANARFL
780	3	DRB	M W	3	BOWEN
794	3- 5	C		ARR	
880D	3- 5	D	T R	3	CREPFAU
880E	3- 5	D	MTWRF	11	GLANCY
970E	2- 5	S	M W	1	MORROW
970F	2- 5	S	T R	1	RITTER
994	3- 5	D		ARR	
999		C		ARR	

SPRING QUARTER

165	5	L	M W F	10	CREPFAU
		T		8	
		R		9	
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		L	M W F	1	RITTER
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		L	M W F	9	GLANCY
		R		10	
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		R		1	
		R		2	
		R		3	

## Veterinary Medicine

No. Crd't. Sec. Day Time Instructor

## SUMMER QUARTER

693	2-	8 LB		ARR	THARP
999		I		ARR	THARP

## AUTUMN QUARTER

520	3	L	M R	2	DONOVAN
			W	11	
530	4	L	MTWR	1	WEARLY
532	4	L	MTWR	8	WEARLY
610	3	LB		ARR	WYMAN
620	5	LB		ARR	GISLER
693	2-	8 LB		ARR	THARP
720	3-	5 LB		ARR	DONOVAN
999		I		ARR	THARP

## WINTER QUARTER

521	3	L	T R	2	DONOVAN
			F	11	
531	3	L	MTW	8	RAINIER
600	1	L	R	7	WHITFUS
610	3	LB		ARR	WYMAN
621	5	LB		ARR	GISLER
693	2-	8 LB		ARR	THARP
721	3-	5 LB		ARR	DONOVAN
999		I		ARR	THARP

## SPRING QUARTER

510	2	L	R	11	
		B	R	1	- 3
		B	R	3	- 5
522	3	L	M R	2	DONOVAN
			T	11	
540	5	L	MTWRF	8	MURDICK
600	1	L	T	7	WHITFUS
610	3	LB		ARR	WYMAN
693	2-	8 LB		ARR	THARP
999		I		ARR	THARP

## Veterinary Parasitology

No. Crd't. Sec. Day Time Instructor

## SUMMER QUARTER

610	2-	5 L		ARR	KOUTZ
693	2-	8 L		ARR	KOUTZ
999		I		ARR	KOUTZ

## AUTUMN QUARTER

411	3	L	M W F	11	KOUTZ
		B	W	2	- 4
			R	2	- 4
610	2-	5 L		ARR	GROVES
		B		ARR	KOUTZ
693	2-	8 L		ARR	GROVES
		B		ARR	KOUTZ
850	1	S	T	2	- 4
999		I		ARR	KOUTZ

## WINTER QUARTER

412	3	L	MTW	11	KOUTZ
		B	W	2	- 4
		B	R	2	- 4
610	2-	5 L		ARR	GROVES
		B		ARR	KOUTZ
693	2-	8 L		ARR	GROVES
		B		ARR	KOUTZ
850	1	S		ARR	KOUTZ
999		I		ARR	KOUTZ

## SPRING QUARTER

410	4	L	TWRF	11	KOUTZ
		B	R	1	- 3
		B	R	3	- 5
610	2-	5 L		ARR	GROVES
		B		ARR	KOUTZ
693	2-	8 L		ARR	GROVES
		B		ARR	KOUTZ

850	1	S		ARR	KOUTZ
999		I		ARR	KOUTZ

## Veterinary Pathology

No. Crd't. Sec. Day Time Instructor

## SUMMER QUARTER

625	2-10	LB		ARR	FARRFLL
693	1-10	80		ARR	GRIESEMER
710	2-10	80		ARR	KOESTNER
850	1	85		ARR	GRIESEMER
999		I		ARR	GRIESEMER

## SUMMER 2ND TERM

625	2-10	LB		ARR	
693	1-10	80		ARR	
710	2-10	80		ARR	
850	1	85		ARR	

## AUTUMN QUARTER

510	6	8DR	MT RF	9	-11	CAPEN
625	2-10	LB	M W F	ARR		FARRFLL
693	1-10	80	TWR	ARR		CAPEN COLF
710	2-10	80	TWRF	ARR		FARRFLL LO
720	2-10	80	M WRF	ARR		GRIESEMER
850	1	85	T R	ARR		COLE FOWLE
999		I	MTWRF	ARR		CAPEN COLE

## WINTER QUARTER

511	6	8DR	MTWR	9	-11	SHADDOCK
610	3	8DR	M W F	2		MARSH
625	2-10	LB	M W F	ARR		FARRELL
693	1-10	80	T RFS	ARR		CAPEN COLF
710	2-10	80	TWRF	ARR		GRIESEMER
850	1	85	T R	ARR		COLE
999		I	MTWRF	ARR		CAPEN COLE

## SPRING QUARTER

512	6	8DR	MT RF	9	-11	FOWLER, LON
625	2-10	LB	M W F	ARR		FARRFLL
693	1-10	80	T RFS	ARR		CAPEN, COLE
710	2-10	80	TWRF	ARR		ROHOVSKY
715	2-10	80	MTW F	ARR		LONG, FARRF
850	1	85	T R	ARR		COLE, FOWLE
999		I	MTWRF	ARR		CAPEN, COLE

## Veterinary Physiology and Pharmacology

No. Crd't. Sec. Day Time Instructor

## SUMMER QUARTER

693	3-15	80		ARR	POWERS
999		I		ARR	POWERS

## AUTUMN QUARTER

210	5	L	MT RF	11		RAY
		B	R	2	- 4	
531	5	L	MTWR	1		POWERS
		B	M	2	- 5	
		B	T	2	- 5	
630	5	L	MT RF	8		REDDING
			W	10		REDDING
693	3-15	I		ARR		POWERS
750	3	L		ARR		SMITH HAML
799	2	S		ARR		POWERS
999		I		ARR		SMITH

## WINTER QUARTER

211	5	L	MT RF	11		REDDING
		B	R	9	-11	
532	5	L	MTWR	8		RAY POWERS
		B	M	2	- 5	
		B	T	2	- 5	



632	4	L	MTWR	1	POWERS RAY
693	3-15	BD		ARR	REDDING
791	3	L		ARR	SMITH HAML
799	2	S		ARR	SMITH
999		I		ARR	SMITH
SPRING QUARTER					
530	5	L	TWRF	9	REDDING
		B		8	
		B		1	
		B		-11	
693	3-15	I		ARR	POWERS
779	5	L		ARR	YEARY
		B		ARR	YEARY
780	5	C		ARR	POWERS
792	3	L		ARR	SMITH HAML
799	2	S		ARR	SMITH
999		I		ARR	SMITH

532	1	B	RFS	8	
693	3-5	DB		ARR	RUDY
999		I		ARR	RUDY
SPRING QUARTER					
510	5	L	MT RF	8	GABEL
		B		1	
		B		3	
531	6	D	MTWRF	1	JOHNSON
				5	
532	1			ARR	RUDY
693	3-5	DB		ARR	RUDY
999		I		ARR	RUDY

## Veterinary Preventive Medicine

No.	Crd't.	Sec.	Day	Time	Instructor
SUMMER QUARTER					
693	2-5	BD		ARR	HELWIG
810	3-8	BD		ARR	HELWIG
999		I		ARR	HELWIG
AUTUMN QUARTER					
200	3	L	M W F	8	HELWIG
510	3	L	MT R	11	JONES
610	15	W		ARR	HELWIG
693	2-5	I		ARR	HELWIG
785	3	I		ARR	HELWIG
810	3-8	D		ARR	JONES
850	1	S		ARR	HELWIG
999		I		ARR	HELWIG
WINTER QUARTER					
201	3	L	M W F	8	ROBINSON
511	3	L	MTW	3	HELWIG
610	15	W		ARR	HELWIG
616	5	D		ARR	HELWIG
693	2-5	BD		ARR	HELWIG
785	3	D		ARR	HELWIG
810	3-8	BD		ARR	JONES
850	1	S		ARR	JONES
999		I		ARR	HELWIG
SPRING QUARTER					
512	4	L	M TWRF	3	JONES
		D		2	JONES
				-5	
610	15	W		ARR	HELWIG
616	5			ARR	HELWIG
693	2-5	I		ARR	HELWIG
785	3			ARR	HELWIG
850	1	S		ARR	JONES
999		I		ARR	HELWIG

## Veterinary Surgery and Radiology

No.	Crd't.	Sec.	Day	Time	Instructor
SUMMER QUARTER					
693	1-5	DB		ARR	RUDY
999		I		ARR	RUDY
AUTUMN QUARTER					
520	3	L	F	8	BURT
		B		2	
		B		-5	
532	1	B		ARR	RUDY
693	1-5	I		ARR	RUDY
999		I		ARR	RUDY
WINTER QUARTER					
530	6	D	MTW	1	RUDY

## Welding Engineering

No.	Crd't.	Sec.	Day	Time	Instructor
SUMMER QUARTER					
784	2-15	L		ARR	
799	2-15	I		ARR	
884	2-6	D		ARR	
999		I		ARR	
SUMMER 1ST TERM					
784	2-8	LB		ARR	
799	2-8	I		ARR	
884	2-6	D		ARR	
999		I		ARR	
SUMMER 2ND TERM					
784	2-8	LB		ARR	
799	2-8	I		ARR	
884	2-6	D		ARR	
999		I		ARR	
AUTUMN QUARTER					
240	3	LR	M W F	8	FRIEDMAN
				9	
401	4	LB	M W F	630-930P	HUDEC
				9	JACKSON
		B	T	8	
				9	
		B	T	1	
				2	
430	4	L	M W F	1	GOLIS
		R		8	GOLIS
		B		1	GOLIS
489	6	W		ARR	JACKSON
589	6	W		ARR	FUNK
610	4	L	M W F	11	MCCAULEY
		B		9	HUDEC
				10	
631	4	L	M W F	3	MCMASTER
		B	T	1	
				-4	
704	3	L	M W F	4	MCMASTER
720	4	L	M W F	10	GREEN
		B		1	
				2	
				3	
784	2-15			ARR	
784A	3	L	M W F	9	FUNK
784B	3	LR	M W F	11	JACKSON
784I	3	L	M W F	10	FUNK
799	2-15			ARR	
884	2-6			ARR	
999		I		ARR	
WINTER QUARTER					
240	3	LB	M W F	12	FRIEDMAN
				1	
		LB	M W	630-8 P	HUDEC
				8 - 930P	
602	4	L	M W F	11	MCMASTER
		B	T	9	MITCHELL
				10	
611	5	L	M WRF	1	JACKSON
		B		2	FRIEDMAN
				3	
630	3	L	M W F	2	MCMASTER
640	3	L	M W F	3	GREEN
680	1	B	T	9	GOLIS
		B		9	GOLIS
721	4	L	M W F	9	GREEN
		B		9	
				10	
				-12	

Welding Engineering    (Cont'd)

784	2-15	L		ARR	
784C	3	L	M W F	4	MCCAULEY
784D	3	L	M W F	2	FUNK
784E	3	L	M W F	3	JACKSON
799	2-15	I		ARR	
884	2- 6	D		ARR	
999		I		ARR	
SPRING QUARTER					
240	3	LB	M W F	2	JACKSON
			M W F	3	
		LB	M W	630- 930P	FRIEDMAN
488	2	F		ARR	MCMASTER
501	4	L	M W F	1	LIBBY
		B	T	2	
			T	3	- 5
		B	R	2	
			R	3	- 5
588	2	F		ARR	MCMASTER
612	4	L	M W F	9	MCCAULEY
		B	T	1	
			T	2	- 4
		B	W	3	
			W	4	- 6
705	3	L	M W F	11	MCMASTER
722	4	L	M W F	8	GREEN
		B	R	9	
			R	10	-12
755	1	B	R	1	MCMASTER
			R	2	- 4
784	2-15			ARR	
784F	3	LB	M W F	4	MCMASTER
784G	3	LB	T	3	JACKSON
784H	3	L	M W F	12	MCCAULEY
784I	3	L	M W F	2	FUNK
799	2-15			ARR	
884	2- 6			ARR	
999		I		ARR	

Zoology

No.	Cr'd't.	Sec.	Day	Time	Instructor
SUMMER QUARTER					
101	5	L	T R	10	
		BR	M W F	10	
		L	T R	11	
		BR	M W F	11	
234	5	L	M W F	11	
		B	M W	8	-11
		B	T R	8	-11
531	5	L	M W F	1	
		B	T R	1	- 3
693	2- 5			ARR	
694	5	D		ARR	
999		I		ARR	
SUMMER 1ST TERM					
621	4	D10	T R S	8	- 4
624	4	D10	T R S	8	- 4
651	4	D10	M W F	8	- 4
652	4	D10	M W F	8	- 4
693	2- 5	I		ARR	
694	2- 5	D		ARR	
999		I		ARR	
SUMMER 2ND TERM					
612	4	D10	T R S	8	- 4
622	4	D10	M W F	8	- 4
653	4	D10	T R S	8	- 4
654	4	D10	M W F	8	- 4
693	2- 5	I		ARR	
694	2- 5	D		ARR	
999		I		ARR	
AUTUMN QUARTER					
101	5	L	T R	8	
		L	T R	9	
		L	T R	10	
		L	T R	2	
		BR	M W F	8	
		BR	M W F	9	
		BR	M W F	10	
		BR	M W F	11	
		BR	M W F	12	
		BR	M W F	1	
		BR	M W F	2	
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		BR	M W F	5	
		BR	M W F	6	</



232	5	B	T R	8	-10		220	5	L	T R	9		REESE
		L	T R	8					B	M	8	-10	
		B	M W	8	-10		231	5	L	M W	8	-10	
		L	M W	10					B	M W	8		
		B	T R	10					B	T R	8	-10	
		L	T R	10	-12				L	T R	8		
		B	T R	10					B	T R	8		
		L	M W	10	-12				L	M W	8	-10	
		B	M W	9					B	M W	10		
		L10	F	9					L	F	10		
		R10	F	9					B	T R	10	-12	
		B10	T R	8	-10				L	T R	10		
		L	T R	9					L	T R	10		
		B	T R	9					B	T R	10	-12	
		L	M W	8	-10		232	5	L	M W	1		
		B	M W	11					L	F	1		
		L	F	11					B	T R	1	- 3	
		B	T R	10	-12				L	T R	1		
		L	T R	11					B	F	1		
		B	T R	11					L	M W	1	- 3	
		L	M W	10	-12				B	M W	3		
		B	M W	1					L	F	3		
		L10	F	1					B	T R	3	- 5	
		R10	F	1					L	T R	3		
		B10	T R	1	- 3				B	T R	3		
		L	T R	2					L	F	3		
		B	F	2					B	M W	3	- 5	
		L	M W	1	- 3		233	5	L	M W	9		
		B	M W	4					L	F	9		
		L	F	4					B	T R	8	-10	
		B	T R	3	- 5				L	T R	9		
		L	T R	4					B	F	9		
		B	F	4					L	M W	8	-10	
		L	M W	3	- 5				B	M W	11		
234	5	B	M W	11		GILT7			L10	M W	11		
		L	T R	9	-12				R10	F	11		
		B	M W	8	-11				B10	T R	10	-12	
		L	T R	1	- 4				L	T R	11		
432	5	B	M W	1					B	M W	10	-12	
		L	M W	11					L	M W	2		
		B	M W	8	-11				B	F	2		
		L	T R	8	-11				L	T R	1	- 3	
500	5	B	M W	10		TIDD			B	T R	2		
530	5	L	M W	1		MILLFR			L	F	2		
		B	M W	9	-12				B	M W	1	- 3	
		L	T R	9	-12				L10	M W	8		
		B	M W	2	- 5				R10	F	4		
623	3	L	M W	10		PUTNAM			B10	T R	3	- 5	
		B	F	10	-12				L	T R	4		
625	3	L	M W	1	- 3	GOOD			B	F	4		
630	5	B	T R	8	-10	PRICE			L	M W	3	- 5	
		L	T R	10	-12			234	5	B	M W	11	GILT7
		B	T R	10	-12				L	T R	9	-12	
640	5	L	M W	2		PUTNAM			B	M W	8	-11	
		B	M W	3	- 5				L	T R	1	- 4	
		L	T R	1	- 3				B	M W	1	- 4	
		B	T R	3	- 5				L	M W	1		
662	5	L	M W	3		GOOD		430	5	B	M W	9	-12
		B	T R	3	- 5				L	T R	9	-12	
693	2- 5	I	ARR						B	M W	2	- 5	
694	2- 5	D	ARR					610	5	L	T R	11	J.N.MILLFR
	4	D	M	1		BYERS			B	M W	8	-10	
840	5	D	T R	10		BYERS			L	M W	10	-12	
851	5	D	M W	11	-1230	ROTHENAUHL		620	5	L	M W	10	PRICE
881	1	S	M W	11		PETERLE			B	T R	8	-10	
897	1	S	ARR					633	5	L	M W	11	
999		I	ARR			DAMBACH			B	M W	8	-11	
			ARR						L	T R	8	-11	
SPRING QUARTER								650	5	L	T R	11	STANCHERY
									B	F	11	-10	
101	5	L	T R	8					L	F	10	-12	
		L	T R	10				660	5	B	M W	2	WOMOT
		L	T R	2					B	M W	3	- 5	
		B	M W	8					L	F	3	- 5	
		B	M W	9				693	2- 5	I	ARR		
		B	M W	10				694	2- 5	D	ARR		
		B	M W	11				812	5	L	M W	1	CRITFS
		B	M W	12					B	T R	12	- 2	
		B	M W	1				841	3	L	M	2	BORROR
		B	M W	2					B	T	2	- 4	
		B	M W	3				881	1		ARR		
		B	M W	4				896	1- 3		ARR		
		B	M W	5				897	1		ARR		
		B	M W	6				999		I	ARR		

LIMA CAMPUS

Accounting

No.	Crd't.	Sec.	Day	Time	Instructor
WINTER QUARTER					
211	5	LD	T R	5 - 730P	
SPRING QUARTER					
212	5	L	T R	5 - 730P	

Agricultural Economics

No.	Crd't.	Sec.	Day	Time	Instructor
SPRING QUARTER					
100	5	L	T R	2 - 430	

Agriculture Survey Courses

No.	Crd't.	Sec.	Day	Time	Instructor
AUTUMN QUARTER					
101	1	D	R	12 - 2	

Agronomy

No.	Crd't.	Sec.	Day	Time	Instructor
WINTER QUARTER					
200	5	L	M W	1230- 3	

Anthropology

No.	Crd't.	Sec.	Day	Time	Instructor
AUTUMN QUARTER					
261	5	D	M W	5 - 730P	

WINTER QUARTER

251	5	LD	M W	5 - 730P
SPRING QUARTER				
210	5	L	M W	5 - 730P

Aviation

No.	Crd't.	Sec.	Day	Time	Instructor
WINTER QUARTER					
211	4	LB	M W	5 - 730P	

Biology

No.	Crd't.	Sec.	Day	Time	Instructor
AUTUMN QUARTER					
102	5	D	MTWRF	9	
		D	MTWRF	10	
		D	MTWRF	11	
		D	MTWRF	12	
		D	MTWRF	3	
		D	MTWRF	4	
		D	M W	5 - 730P	
WINTER QUARTER					
102	5	LD	MTWRF	4	
		LD	MTWRF	10	
		LD	M W	5 - 730P	
SPRING QUARTER					
102	5	LD	MTWRF	9	
		LD	MTWRF	10	
		LD	M W	5 - 730P	
130	5	L	MTWRF	3	
410	5	L	MTWRF	4	
630	5	L	MTWRF	3	

Botany

No.	Crd't.	Sec.	Day	Time	Instructor
WINTER, QUARTER					
102	5	LD	MTWRF	11	
		LD	MTWRF	3	
SPRING QUARTER					
102	5	LD	MTWRF	11	
		LD	T R	5 - 730	

Business Organization

No.	Crd't.	Sec.	Day	Time	Instructor
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AUTUMN QUARTER

510	4	D	M W	5 - 730P
WINTER QUARTER				
620	4	LD	M W	5 - 730P
SPRING QUARTER				
650	4	LD	M W	5 - 730

Chemistry

No. Crd't. Sec. Day Time Instructor

AUTUMN QUARTER

101	5	L	M W F	11	ROTHEMUND
		R	T	11	ROTHEMUND
		B	W	1 - 4	ROTHEMUND
121	5	L	M W	4	SALMON
		R	F	3	SALMON
		B	T	2 - 5	SALMON
		R	F	4	SALMON
		B	R	1 - 4	SALMON
		R	F	5	SALMON
		B	R	4 - 7 P	SALMON

WINTER QUARTER

102	5	L	M W F	11	ROTHEMUND
		R	T	11	ROTHEMUND
		B	W	1 - 4	ROTHEMUND
122	5	L	M W	4	SALMON
		R	F	3	SALMON
		B	T	2 - 5	SALMON
		R	F	4	SALMON
		B	R	1 - 4	SALMON
		R	F	5	SALMON
		B	R	4 - 7 P	SALMON
241	3	L	M W F	9	ROTHEMUND

SPRING QUARTER

123	5	L	M W F	4	SALMON
		B	T R	2 - 5	SALMON
		B	T R	5 - 8 P	SALMON
242	3	L	M W F	9	ROTHEMUND
243	3	B	M W F	1 - 4	ROTHEMUND

Comparative Literature and Language

No. Crd't. Sec. Day Time Instructor

AUTUMN QUARTER

101	3		M W F	2	
			M W F	4	
			M W	6 - 730P	

WINTER QUARTER

102	3	R	M W F	2	VEST
		R	M W F	4	
		R	M W	6 - 730P	

SPRING QUARTER

103	3	L	M W F	2	
		L	M W F	4	
		L	M W	6 - 730	

Economics

No. Crd't. Sec. Day Time Instructor

AUTUMN QUARTER

201	5	D	M W	730-10 P
520	4	D	T R	5 - 7 P
WINTER QUARTER				
402	5	LD	M W	5 - 730P
442	5	LD	T R	730-10 P
SPRING QUARTER				
530	4	LD	M W	5 - 7

Education

No. Crd't. Sec. Day Time Instructor

AUTUMN QUARTER

460	4	D	MTWR	1
461	3	D	M W F	1

WINTER QUARTER

460	4	L	MTWR	1
461	3	L	M W F	2

SPRING QUARTER

108	3	LD	M W F	10
		LD	M W F	1
435	5	LD	T R	5 - 730

Engineering Graphics

No. Crd't. Sec. Day Time Instructor

AUTUMN QUARTER

111	3	LB	T R	2 - 430
		LB	M W	730-10 P

WINTER QUARTER

111	3	LB	M W	730-10 P
112	3	LB	M W	1230- 3

SPRING QUARTER

112	3	LD	M W	2 - 430
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Engineering Mechanics

No. Crd't. Sec. Day Time Instructor

SPRING QUARTER

210	5	D	MTWRF	10
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English

No. Crd't. Sec. Day Time Instructor

English (Cont'd)

AUTUMN QUARTER

101	3	D	M W F	9	
		D	M W F	10	
		D	M W F	11	
		D	M W F	1	
		D	M W F	2	
		D	M W F	3	
		D	M W F	4	
		D	M W	6 - 730P	
		D	M W	730- 9 P	
102	3	D	M W F	10	
103	3	D	M W F	2	
220	5	D	MTWRF	10	
290	5	D	MTWRF	11	
		D	M W	5 - 730	

WINTER QUARTER

101	3	LD	M W F	9	
		LD	M W F	11	
		LD	M W F	730- 830P	
102	3	LD	M W F	9	
		LD	M W F	10	
		LD	M W F	11	
		LD	M W F	1	
		LD	M W F	2	
		LD	M W F	3	
		LD	T R	730- 9 P	
103	3	LD	M W F	3	
261	5	LD	MTWRF	3	
293	5	LD	MTWRF	5 P	
		LD	M W	5 - 730	
301	5	LD	MTWRF	11	

SPRING QUARTER

101	3	LD	M W F	10	
102	3	LD	M W F	11	
		LD	M W F	2	
103	3	LD	M W F	9	
		LD	M W F	10	
		LD	M W F	11	
		LD	M W F	1	
		LD	M W F	2	
		LD	M W F	3	
		LD	T R	9 -1030	
		LD	M W	4	
		LD	M W	730- 9 P	
220	5	LD	MTWRF	10	P
240	5	LD	MTWRF	3	
260	5	LD	MTWRF	5	P
294	5	LD	MTWRF	11	

Fine Arts

No.	Crd't.	Sec.	Day	Time	Instructor
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AUTUMN QUARTER

111	3	L	M W F	1	STEWART
		L	M W	6 - 730P	NEISE
190	3	B	M W F	10 -12	NEISE
290	5	B	MTWRF	3 - 5	STEWART

WINTER QUARTER

111	3	L	M W F	2	STEWART
190	3	B	M F	10 -12	NEISE
			W	10	
270	3	B	M W F	1 - 3	NEISE
290	5	B	MTWRF	3 - 5	STEWART

SPRING QUARTER

111	3	L	M W F	2	STEWART
170	5	B	MTWRF	10 -12	NEISE
190	3	B	M W	3 - 5	
			M R	3 - 5	STEWART
			W	3	
270	3	B	M W F	1 - 3	NEISE

French

No.	Crd't.	Sec.	Day	Time	Instructor
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AUTUMN QUARTER

101	5	L	MTWRF	10	
		L	MTWRF	11	
104	5	L	MTWRF	12	

WINTER QUARTER

102	5	L	MTWRF	10	
		L	MTWRF	11	
105	5	L	MTWRF	12	

SPRING QUARTER

103	5	LD	MTWRF	10	
		LD	MTWRF	11	

Geography

No.	Crd't.	Sec.	Day	Time	Instructor
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AUTUMN QUARTER

220	5	L	MTWRF	3	
		L	M W	5 - 730P	
240	5	L	MTWRF	2	

WINTER QUARTER

220	5	LD	MTWRF	3	
240	5	LD	MTWRF	3	
		LD	T R	5 - 730P	

SPRING QUARTER

220	5	LD	MTWRF	2	
		LD	M W	5 - 730P	
240	5	LD	MTWRF	3	

Geology

No.	Crd't.	Sec.	Day	Time	Instructor
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AUTUMN QUARTER

100	5	LB	MTWRF	9	HAGAR
		LB	MTWRF	1	HAGAR

WINTER QUARTER

100	5	LD	MTWRF	1	HAGAR
101	5	LD	MTWRF	4	HAGAR
		B	R	10 -12	HAGAR

SPRING QUARTER

100	5	LD	MTWRF	1	
102	5	LD	MTW F	10	
		B	R	10 -12	

German

No.	Crd't.	Sec.	Day	Time	Instructor
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AUTUMN QUARTER

101	5	R	M W	5 - 730P
104	5	R	M W	730-10 P

WINTER QUARTER

102	5	R	M W	5 - 730P
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SPRING QUARTER

103	5	R	M W	5 - 730P
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Health Education

No.	Crd't.	Sec.	Day	Time	Instructor
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WINTER QUARTER

300	3	L	T R	6 - 730P
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SPRING QUARTER

103	3	L	T R	6 - 730P
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History

No.	Crd't.	Sec.	Day	Time	Instructor
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AUTUMN QUARTER

103	5	LD	MTWRF	10
		LD	MTWRF	2
121	5	L	MTWRF	9
		L	MTWRF	11
		L	MTWRF	3
		L	MTWRF	4
		L	M W	730-10

WINTER QUARTER

104	5	LD	MTWRF	10
		LD	MTWRF	2
122	5	LD	MTWRF	9
		LD	MTWRF	11
		LD	MTWRF	3
		LD	M W	730-10 P
213	3	LD	M W	4 - 530
232	3	LD	M W F	9

SPRING QUARTER

103	5	L	MTWRF	10
123	5	LD	MTWRF	9
		LD	MTWRF	2
		LD	M W	730-10 P
		L 1	T R	3 - 5
211	3	L	M W F	11
233	3	L	M W F	9

Journalism

No.	Crd't.	Sec.	Day	Time	Instructor
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AUTUMN QUARTER

101	3	L	M	5 - 730P
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Mathematics

No.	Crd't.	Sec.	Day	Time	Instructor
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AUTUMN QUARTER

101	5	LD	MTWRF	11
		LD	MTWRF	2
		LD	MTWRF	6
116	5	LD	MTWRF	9
121	5	LD	MTWRF	1
123	5	LD	MTWRF	10
150	5	LD	MTWRF	10
		LD	MTWRF	2
		LD	MTWRF	6
151	5	LD	MTWRF	9
153	5	LD	MTWRF	11

WINTER QUARTER

105	3	L	M W F	4
116	5	L	MTWRF	6
117	5	L	MTWRF	9
121	5	L 1	MTWRF	1
150	5	L	MTWRF	11
		L	MTWRF	2
151	5	L	MTWRF	10
		L	MTWRF	6
152	5	L	MTWRF	9
254	5	L	MTWRF	11

SPRING QUARTER

101	5	L	MTWRF	11
117	5	L	MTWRF	6
122	5	L	MTWRF	1
151	5	L	MTWRF	2
152	5	L	MTWRF	10
		L	MTWRF	6
153	5	L	MTWRF	9
255	5	L	MTWRF	11

Music

No.	Crd't.	Sec.	Day	Time	Instructor
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AUTUMN QUARTER

141	3	D	M W F	3
191	1	I		ARR
		I	M W F	12
270	3	DB	MTWRF	2
		DB	MTWRF	4

WINTER QUARTER

141	3	D	M W F	10
191	1	I	M W F	
		I		ARR
270	3	I	MTWRF	4
271	2	D	MTW F	3

SPRING QUARTER

141	3	D	M W F	11
143	3	L	M W F	2
191	1	I	M W F	12
		I		ARR
370	3	DB	MTWRF	3

Philosophy

No.	Crd't.	Sec.	Day	Time	Instructor
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AUTUMN QUARTER

101	5	LD	T R	2 - 430
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## Philosophy (Cont'd)

## WINTER QUARTER

101	5	L	T R	1230-3
150	5	T	M W	5 - 730P

## SPRING QUARTER

101	5	L	T R	2 - 430
130	5	L	M W	5 - 730P

## Physical Education

No.	Crd't.	Sec.	Day	Time	Instructor
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## SPRING QUARTER

323	3	L	T R	6 - 730P	
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## Physics

No.	Crd't.	Sec.	Day	Time	Instructor
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## AUTUMN QUARTER

111		L	MTWRF	3	
	5	B	T R	4 - 6	
231	5	L	MTWRF	5	P
		B	T R	6 - 8	

## WINTER QUARTER

112	5	LD	MTWRF	3	
232	5	LD	MTWRF	5	P

## SPRING QUARTER

113	5	LB	MTWRF	3	
233	5	LB	MTWRF	5	P

## Political Science

No.	Crd't.	Sec.	Day	Time	Instructor
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## AUTUMN QUARTER

100	5	LD	MTWRF	3	
265	5	LD	MTWRF	4	

## WINTER QUARTER

225	5	LD	MTWRF	3	
265	5	LD	MTWRF	4	

## SPRING QUARTER

100	5	L	MTWRF	9	
205	5	L	MTWRF	11	

## Psychology

No.	Crd't.	Sec.	Day	Time	Instructor
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## AUTUMN QUARTER

100	5	LD	MTWRF	11	
		LD	MTWRF	2	
		LD	MTWRF	4	
320	3	LD	T R	730-10 P	
		LD	T R	5 - 630	

## WINTER QUARTER

100	5	LD	MTWRF	1	
		LD	MTWRF	3	
101	5	LD	MTWRF	4	
		LD	M W	730-10 P	

## SPRING QUARTER

100	5	LD	MTWRF	3	
230	5	LD	MTWRF	9	
		LD	MTWRF	11	
		LD	M W	5 - 730P	

## Rural Sociology

No.	Crd't.	Sec.	Day	Time	Instructor
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## SPRING QUARTER

105	5	LD	M W	2 - 430	
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## Sociology

No.	Crd't.	Sec.	Day	Time	Instructor
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## AUTUMN QUARTER

101	5	LD	MTWRF	11	
		LD	MTWRF	2	
		LD	MTWRF	4	
		LD	T R	730-10 P	

## WINTER QUARTER

101	5	LD	MTWRF	11	
202	5	LD	MTWRF	2	
		LD	T R	730-10 P	

## SPRING QUARTER

220	5	LD	MTWRF	11	
		LD	MTWRF	1	
		LD	MTWRF	3	

## Spanish

No.	Crd't.	Sec.	Day	Time	Instructor
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## AUTUMN QUARTER

101	5	LD	MTWRF	9	
		LD	MTWRF	10	
104	5	LD	MTWRF	11	

## WINTER QUARTER

102	5	LD	MTWRF	9	
		LD	MTWRF	10	
105	5	LD	MTWRF	11	

## SPRING QUARTER

103	5	LR	MTWRF	9	
		LR	MTWRF	10	
421	5	LR	MTWRF	11	



## Speech

No.	Crd't.	Sec.	Day	Time	Instructor
AUTUMN QUARTER					
105	5	LD	MTWRF	1	
165	5	LD	MTWR	3	
235	3	LD	T R	3 - 430	
WINTER QUARTER					
110	5	LD	MTWRF	3	
SPRING QUARTER					
165	5	LR	MTWR	3	

## Zoology

No.	Crd't.	Sec.	Day	Time	Instructor
AUTUMN QUARTER					
101	5	LD	MTWRF	1	
WINTER QUARTER					
101	5	LD	MTWRF	12	
		LD	MTWRF	1	
		LD	MTWRF	2	
		LD	T R	5 - 730P	
SPRING QUARTER					
101	5	L	MTWRF	12	
		L	MTWRF	2	

## MANSFIELD CAMPUS

### Accounting

No.	Crd't.	Sec.	Day	Time	Instructor
WINTER QUARTER					
211	5	L	T R	5 - 730P	
		L	T R	1230- 3	
SPRING QUARTER					
212	5	L	T R	5 - 730P	

### Agriculture Survey Courses

No.	Crd't.	Sec.	Day	Time	Instructor
AUTUMN QUARTER					
101	1	L	F	4 - 6	

### Agronomy

No.	Crd't.	Sec.	Day	Time	Instructor
WINTER QUARTER					
200	5	L	T R	3 - 530	

### Anatomy

No.	Crd't.	Sec.	Day	Time	Instructor
WINTER QUARTER					
200	6	L	MTWRF	4	

### Anthropology

No.	Crd't.	Sec.	Day	Time	Instructor
AUTUMN QUARTER					
261	5	L	MTWRF	2	
		L	M W	5 - 730P	
WINTER QUARTER					
251	5	L	M W	730-10 P	
		L	MTWRF	10	

**Anthropology (Cont'd)****SPRING QUARTER**

210 5 L M W 5 - 730P

**Aviation**

No. Crd't. Sec. Day Time Instructor

**AUTUMN QUARTER**

211 4 LB M W 5 - 730

**Biology**

No. Crd't. Sec. Day Time Instructor

**AUTUMN QUARTER**

100	5	LB	MTWRF	8	DALY
		LB	MTWRF	9	
		LB	MTWRF	10	
		LB	MTWRF	12	
		LB	MTWRF	1	
		LB	MTWRF	2	
WINTER QUARTER	5	LB	T R	730-10 P	POFFENBAUGH

**WINTER QUARTER**

100	5	LB	MTWRF	9	P
		LB	MTWRF	11	
		LB	MTWRF	1	
102	5	LB	MTWRF	730-10 P	P
		LB	MTWRF	8	
101	5	LB	MTWRF	10	P
		LB	MTWRF	12	
		LB	M W	730-10 P	

**SPRING QUARTER**

100	5	LB	MTWRF	8	DALY
		LB	MTWRF	10	
		LB	MTWRF	5	
		LB	MTWRF	9	
102	5	LB	MTWRF	12	P
		LB	MTWRF	2	
101	5	LB	MTWRF	4	DALY
		LB	MTWRF	4	

**Botany**

No. Crd't. Sec. Day Time Instructor

**AUTUMN QUARTER**

102 5 L MTWRF 3 BART

**WINTER QUARTER**

102 5 L MTWRF 2 BART

**SPRING QUARTER**

102 5 L MTWRF 3 BART

**Business Organization**

No. Crd't. Sec. Day Time Instructor

**AUTUMN QUARTER**

510 4 D T R 530- 730

**WINTER QUARTER**

490 3 W 5 - 730

**SPRING QUARTER**

650 4 T R 530- 730

**Chemistry**

No. Crd't. Sec. Day Time Instructor

**AUTUMN QUARTER**

101	5	L	MT R	11	P	ZELLER
		R	F	11		
		B	R	5 - 8		
		R	F	3		
121	5	B	T	1 - 4	P	ZELLER
		B	M W	10		
		B	F	10		
		B	T	9 -12		
		B	F	9		
		B	R	9 -12		
221	5	B	R	2 - 5	P	SCHOLL
		L	MT R	3		
		L	F	2		
		L	W	2 - 5		
WINTER QUARTER	5	L	M W F	2 - 5	P	SCHOLL

**WINTER QUARTER**

102	5	L	MTW	4	P	ZELLER
		B	R	5 - 8		
		B	F	3		
		B	T	1 - 4		
122	5	L	M W	10	P	SCHOLL
		B	F	10		
		B	T	9 -12		
		B	F	9		
		B	R	9 -12		
		B	F	2		
241	3	L	M W F	9	P	SCHOLL
		B	M W F	1 - 4		
243	3	L	M W F	9	P	ZELLER
		B	M W F	1 - 4		

**SPRING QUARTER**

101	5	L	MT R	11	P	ZELLER
		B	R	1 - 4		
		L	M W F	10		
		L	M W F	4		
123	5	B	M W	9 -12	P	ZELLER
		B	M W	9 -12		
		B	T R	9 -12		
		B	M W	1 - 4		
		B	T R	1 - 4		
		B	L	1 - 4		
242	3	L	M W F	9	P	ZELLER
		B	M W F	1 - 4		
244	3	L	M W F	9	P	ZELLER
		B	M W F	1 - 4		

**Comparative Literature and Language**

No. Crd't. Sec. Day Time Instructor

**AUTUMN QUARTER**

101 3 L M W F 9 MIDWELL



		L	M W F	10	BIDWELL
		L	M W F	11	BIDWELL
		L	M W	530- 700	KOPF

## WINTER QUARTER

102	3	L	M W F	9	
		L	M W F	11	
		L	M W F	2	
		L	M W	6 - 730P	

## SPRING QUARTER

103	3	L	M W F	2	
		L	M W F	4	

## Economics

No. Crd't. Sec. Day Time Instructor

## AUTUMN QUARTER

201	5	L	MTWRF	11	
		L	M W	730-10 P	
442	5	L	T R	730-10 P	
520	4	L	T R	530- 730	

## WINTER QUARTER

201	5	L	MTWRF	2	
402	5	L	MTWRF	11	
		L	M W	5 - 730P	

## SPRING QUARTER

402	5	L	MTWRF	1	
530	4	L		ARR	

## Education

No. Crd't. Sec. Day Time Instructor

## AUTUMN QUARTER

108	3		M W F	1	
			T R	1230- 3	
460	4		T R	4 - 530	
461	3		M W F	3	

## WINTER QUARTER

108	3	LR	M W F	9	
435	5	D	T R	4 - 630	

## SPRING QUARTER

243	5		T R	5 - 730	
461	3		M W F	12	
460	4		M W F	1	

## Engineering Graphics

No. Crd't. Sec. Day Time Instructor

## AUTUMN QUARTER

111	3	L	M W F	8 -10	MARSH
		L	T R	12 - 3	MARSH

## WINTER QUARTER

111	3	L	T R F	10 -12	
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112	3	L	M W F	8 -10	
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## SPRING QUARTER

112	3	L	M W F	9 -11	
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## Engineering Mechanics

No. Crd't. Sec. Day Time Instructor

## SPRING QUARTER

210	5	L	MTWRF	1	
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## English

No. Crd't. Sec. Day Time Instructor

## AUTUMN QUARTER

101	3	L	M W F	9	
		L	M W F	10	
		L	M W F	11	
		L	M W F	1	
		L	M W F	2	
		L	M W F	3	
		L	M W F	4	
		L	M W	6 - 730P	
		L	M W	730- 9 P	
		L	T R	9 -1030	
		L	T R	11 -1230	
		L	T R	1 - 230	
		L	T R	3 - 430	
		L	T R	6 - 730P	
		L	T R	730- 9 P	

102	3	L	M W F	10 -11	
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103	3	L	M W F	1	
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		L	M W	6 - 730P	
--	--	---	-----	----------	--

220	5	L	MTWRF	3	
-----	---	---	-------	---	--

240	5	L	T R	730-10 P	
-----	---	---	-----	----------	--

290	5	L	MTWRF	11	
-----	---	---	-------	----	--

		L	M W	5 - 730	
--	--	---	-----	---------	--

301	5	L	MTWRF	9	
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## WINTER QUARTER

101	3	L	M W F	1	
-----	---	---	-------	---	--

		L	M W F	10	
--	--	---	-------	----	--

		L	T R	6 - 730P	
--	--	---	-----	----------	--

102	3	L	M W F	8	
-----	---	---	-------	---	--

		L	M W F	9	
--	--	---	-------	---	--

		L	M W F	10	
--	--	---	-------	----	--

		L	M W F	11	
--	--	---	-------	----	--

		L	M W F	12	
--	--	---	-------	----	--

		L	M W F	1	
--	--	---	-------	---	--

		L	M W F	2	
--	--	---	-------	---	--

		L	M W F	3	
--	--	---	-------	---	--

		L	M W F	4	
--	--	---	-------	---	--

		L	M W F	6 - 730P	
--	--	---	-------	----------	--

		L	M W	730- 9 P	
--	--	---	-----	----------	--

		L	T R	8 - 930P	
--	--	---	-----	----------	--

		L	T R	10 -1130	
--	--	---	-----	----------	--

		L	T R	1130- 1	
--	--	---	-----	---------	--

		L	T R	1 - 230	
--	--	---	-----	---------	--

		L	T R	230- 4	
--	--	---	-----	--------	--

		L	T R	6 - 730P	
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		L	T R	730- 9 P	
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103	3	L	M W F	10	
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261	5	L	MTWRF	11	
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		L	T R	730-10 P	
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293	5	L	MTWRF	2	
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		L	MTWRF	4	
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## SPRING QUARTER

101	3	L	M W F	10	
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102	3	L	M W F	9	
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		L	M W F	2	
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		L	M W F	9	
--	--	---	-------	---	--

		L	M W F	10	
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## English (Cont'd)

		L	M W F	11	
		L	M W F	1	
		L	M W F	2	
		L	M W F	3	
		L	M W F	4	
		L	M W	7	- 830P
		L	T R	9	-1030
		L	T R	11	-1230
		L	T R	1	- 230
		L	T R	3	- 4300
		L	T R	7	- 830
220	5	L	MTWRF	10	
240	5	L	MTWRF	3	
262	5	L	T R	730-10	P
294	5	L	MTWRF	11	
		L	MTWRF	2	
301	5	D	MTWRF	4	

## Entomology

No.	Crd't.	Sec.	Day	Time	Instructor
AUTUMN QUARTER					
200	5	L	MTWRF	3	WILLIAMS

## Fine Arts

No.	Crd't.	Sec.	Day	Time	Instructor
AUTUMN QUARTER					
111	3	L	M W F	9	BECK
290	5	B	MTWRF	10 -12	BECK
WINTER QUARTER					
111	3	L	M W F	9	
190	3	L	MT R	10	
		B	T R	ARR 2 HRS	
		L	MT R	2	
		B	T R	ARR 2 HRS	
SPRING QUARTER					
111	3	L	M W F	1	
290	5	B	MTWRF	2 - 4	

## French

No.	Crd't.	Sec.	Day	Time	Instructor
AUTUMN QUARTER					
101	5	L	MTWRF	12	KOPF
104	5	L	MTWRF	4	
WINTER QUARTER					
102	5	L	MTWRF	12	
105	5	L	MTWRF	4	
SPRING QUARTER					
103	5	L	MTWRF	1	
421	5	L	MTWRF	3	

## Geography

No.	Crd't.	Sec.	Day	Time	Instructor
AUTUMN QUARTER					
220	5	L	M W F	11	BRADFORD
		B	T R	10	
		B	T R	11	
		L	MTWRF	1	BRADFORD
240	5	L	T R	730-10	P
		L	MTWRF	2	BRADFORD
WINTER QUARTER					
200	5	L	M W F	10	
		B	T R	10	
		B	T R	11	
240	5	L	MTWRF	2	
		L	T R	730-10	P
SPRING QUARTER					
220	5	L	M W F	2	
		B	T R	2	
		B	T R	3	
		L	M W	5 - 730P	
240	5	L	MTWRF	10	

## Geology

No.	Crd't.	Sec.	Day	Time	Instructor
AUTUMN QUARTER					
100	5	L	MTWRF	10	NICKEY
		L	MTWRF	2	NICKEY
WINTER QUARTER					
100	5	L	MTWRF	10	NICKEY
101	5	L	MTWRF	2	
		B	F	2 - 4	
SPRING QUARTER					
100	5	L	MTWRF	2	
102	5	L	MTWRF	10	
		B	F	10 -12	

## German

No.	Crd't.	Sec.	Day	Time	Instructor
AUTUMN QUARTER					
101	5	L	M W	5 - 730	

## Health Education

No.	Crd't.	Sec.	Day	Time	Instructor
AUTUMN QUARTER					
300	3	L	R	730-10	P



## History

No.	Crd't.	Sec.	Day	Time	Instructor
AUTUMN QUARTER					
103	5	L	MTWRF	1	
		L	M W	730-10	P
121	5	L	MTWRF	9	
		L	MTWRF	10	
		L	MTWRF	2	
		L	MTWRF	3	
WINTER QUARTER					
104	5	L	MTWRF	1	FLANDERS
		L	M W	730-10	P
122	5	L	MTWRF	9	FLANDERS
		L	MTWRF	10	BABIONE
		L	MTWRF	2	BABIONE
		L	MTWRF	4	TEN ZYTHOF
		L	MTWRF	5	TEN ZYTHOF
231	3	L	M W F	5	FLANDERS
SPRING QUARTER					
103	5	L	MTWRF	10	
104	5	L	MTWRF	3	
		L	M W	730-10	P
123	5	L	MTWRF	9	
		L	MTWRF	1	
211	3	L	M W F	11	

123	5	L	MTWRF	2	
151	5	L	MTWRF	11	
152	5	L	MTWRF	10	
		L	MTWRF	5	
153	5	L	MTWRF	9	
255	5	L	MTWRF	11	

## Music

No.	Crd't.	Sec.	Day	Time	Instructor
AUTUMN QUARTER					
141	3	D	M W F	3	WINK
		D	M W F	5	- 630P WINK
180	1	B	M W F	12	
191	1	I	T R	4	WINK
270	2	DB	T R	9	WINK
WINTER QUARTER					
141	3	L	M W F	10	
142	3	L	M W F	1	
180	1	D	T R	4	
191	1	I	T R	12	
271	2	D	MTWR	3	
SPRING QUARTER					
141	3	D	M W F	11	
143	3	L	M W F	1	
180	1	I	T R	4	
191	1	I	MTWRF	12	
370	3	L	M W F	2	

## Journalism

No.	Crd't.	Sec.	Day	Time	Instructor
AUTUMN QUARTER					
101	3	L	M W R	8	

## Philosophy

No.	Crd't.	Sec.	Day	Time	Instructor
AUTUMN QUARTER					
101	5	L	MTWRF	9	PASQUARELL
		L	MTWRF	2	PASQUARELL
		L	M W	730-10	P WABER
WINTER QUARTER					
101	5	L	MTWRF	9	
150	5	L	MTWRF	2	
		L	T R	5	- 730P
SPRING QUARTER					
101	5	L	T R	2	- 430
130	5	L	T R	5	- 730P

## Mathematics

No.	Crd't.	Sec.	Day	Time	Instructor
AUTUMN QUARTER					
101	5	L	MTWRF	9	KHURY
		L	MTWRF	11	KHURY
		L	MTWRF	615	
		L	MTWR	715	
116	5	L	MTWRF	2	LANTZ
121	5	L	MTWRF	10	KHORY
123	5	L	MTWRF	1	PARTNER
150	5	L	MTWRF	10	PARTNER
		L	MTWRF	2	
		L	MTWR	5	
151	5	L	MTWRF	8	LANTZ
153	5	L	MTWRF	11	PARTNER
WINTER QUARTER					
105	3	L	M W F	11	
116	5	L	MTWRF	3	
117	5	L	MTWRF	9	
121	5	L	MTWRF	1	
122	5	L	MTWRF	10	
150	5	L	MTWRF	1	
151	5	L	MTWRF	10	
		L	MTWR	5	
152	5	L	MTWRF	8	
254	5	L	MTWRF	11	
SPRING QUARTER					
101	5	L	MTWRF	9	
117	5	L	MTWRF	1	
122	5	L	MTWRF	1	

## Physics

No.	Crd't.	Sec.	Day	Time	Instructor
AUTUMN QUARTER					
111	5	L	T R	3	- 5 PETRUZZELL
		B	ARR		
231	5	L	T R	5	- 7 PETRUZZELL
		B	ARR		
WINTER QUARTER					
112	5	L	MTWR	8	
		B	ARR		
232	5	L	MTWR	5	P

# Physics (Cont'd)

SPRING QUARTER		B	ARR		
113	5	L	MTWR	3	
233	5	B	MTWR	5	P
		L	ARR		

# Political Science

No.	Crd't.	Sec.	Day	Time	Instructor
AUTUMN QUARTER					
100	5	L	MTWRF	9	LERNER
		L	MTWRF	11	LERNER
WINTER QUARTER					
225	5	L	MTWRF	11	
265	5	L	M W	5 - 730P	
SPRING QUARTER					
100	5	L	MTWRF	9	
265	5	L	MTWRF	11	

# Psychology

No.	Crd't.	Sec.	Day	Time	Instructor
AUTUMN QUARTER					
100	5	L	MTWRF	9	KANIA
		L	MTWRF	10	KANIA
		L	M W	5 - 730	GRAY
101	5	L	MTWRF	3	GRAY
230	5	L	MTWRF	10	SCHWEIKERT
320	3	L	M W F	11	
550	3	L	M W F	4	
WINTER QUARTER					
100	5	L	MTWRF	11	
101	5	L	MTWRF	10	
220	5	L	MTWRF	3	
230	5	L	MTWRF	9	
		L	MTWRF	10	
		L	M W	5 - 730	
SPRING QUARTER					
100	5	L	MTWRF	10	
101	5	L	MTWRF	10	
		L	MTWRF	3	
230	5	L	MTWRF	9	
		L	M W	5 - 730	
		L	MTWRF	10	
		L	MTWRF	11	

# Rural Sociology

No.	Crd't.	Sec.	Day	Time	Instructor
SPRING QUARTER					
105	5	L	M W	2 - 430	

# Sociology

No.	Crd't.	Sec.	Day	Time	Instructor
AUTUMN QUARTER					
101	5	L	MTWRF	9	BRANCHY
		L	MTWRF	11	BRANCHY
		L	MTWRF	3	FRITZ
		L	M W	5 - 730	KAPLAN
		L	T R	730-10 P	KAPLAN
207	3	L	M W F	5	FRITZ
WINTER QUARTER					
101	5	L	MTWRF	10	
		L	T R	5 - 730P	
202	5	L	MTWRF	9	
		L	MTWRF	11	
		L	T R	730-10 P	
290	5	L	MTWRF	1	
SPRING QUARTER					
101	5	L	MTWRF	11	
		L	MTWRF	3	
220	5	L	MTWRF	9	
		L	MTWRF	1	
		L	MTWRF	4	
280	3	L	M W F	2	

# Spanish

No.	Crd't.	Sec.	Day	Time	Instructor
AUTUMN QUARTER					
101	5	L	MTWRF	10	
		L	M W	5 - 730P	
104	5	L	MTWRF	4	
WINTER QUARTER					
102	5	L	MTWRF	12	
SPRING QUARTER					
103	5	L	MTWRF	4	

# Speech

No.	Crd't.	Sec.	Day	Time	Instructor
AUTUMN QUARTER					
105	5	L	MTWRF	1	RUDOLPH
		L	M W	730-10 P	
165	5	L	M W F	3	
		L	M	2	
		L	R	3	
265	1	B	ARR		RUDOLPH
WINTER QUARTER					
105	5	L	MTWRF	3	
110	5	L	MTWRF	1	
235	3	L	T R	5 - 630P	
265	1	B	ARR		
SPRING QUARTER					
110	5	L	MTWRF	1	RUDOLPH
125	3	L	ARR		
165	5	L	M W F	3	
		L	M	2	
		L	R	3	
265	1	B	ARR		



# Zoology

No.	Crd't.	Sec.	Day	Time	Instructor
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## AUTUMN QUARTER

101	5	LB	MTWRF	11	
		LB	T R	5	- 730P

## WINTER QUARTER

101	5	LB	MTWRF	9	
		LB	MTWRF	2	
		LB	M W	5	- 730P

## SPRING QUARTER

101	5	LB	MTWRF	8	
		LB	MTWRF	11	
		LB	M W	5	- 730P
211	5	LB	MTWRF	1	

# MARION CAMPUS

## Accounting

No.	Crd't.	Sec.	Day	Time	Instructor
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## WINTER QUARTER

211	5	L	T R	5	- 730
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## SPRING QUARTER

212	5	L	T R	5	- 730
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## Agricultural Economics

No.	Crd't.	Sec.	Day	Time	Instructor
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## SPRING QUARTER

100	5	L	M W	2	- 430
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## Agriculture Survey Courses

No.	Crd't.	Sec.	Day	Time	Instructor
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## AUTUMN QUARTER

101	1	L	F	5	- 7 P
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## Animal Science

No.	Crd't.	Sec.	Day	Time	Instructor
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## WINTER QUARTER

100	5	L	T R	1230- 3	
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## Anthropology

No.	Crd't.	Sec.	Day	Time	Instructor
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## AUTUMN QUARTER

261	5	L	T R	5	- 730P
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## WINTER QUARTER

251	5	D	T R	730-10	P
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## SPRING QUARTER

210	5	L	T R	730-10	P
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## Aviation

No.	Crd't.	Sec.	Day	Time	Instructor
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## SPRING QUARTER

211	4	LB	M W	5	- 730
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## Biology

No.	Crd't.	Sec.	Day	Time	Instructor
AUTUMN QUARTER					
100	5	L	MTWRF	8	
		L	MTWRF	12	
		L	MTWRF	2	
		L	M W	5 - 730	
		L	T R	730-10 P	
WINTER QUARTER					
100	5	L	MTWRF	2	
		L	M W	730-10 P	
101	5	L	MTWRF	10	
		L	MTWRF	12	
		L	T R	730-10 P	
SPRING QUARTER					
100	5	L	T R	5 - 730	
		L	MTWRF	4	
101	5	L	MTWRF	2	
		L	M W	5 - 730	

## Botany

No.	Crd't.	Sec.	Day	Time	Instructor
WINTER QUARTER					
102	5	L	MTWRF	4	
SPRING QUARTER					
102	5	L	MTWRF	10	

## Chemistry

No.	Crd't.	Sec.	Day	Time	Instructor
AUTUMN QUARTER					
121	5	L	T R	4 - 5	
		BR	T R	5 - 730	
		BR	T R	730-10 P	
WINTER QUARTER					
122	5	L	T R	4 - 5	
		BR	T R	5 - 730	
SPRING QUARTER					
123	5	L	MTWRF	3 - 430	
		B	T R	430- 730	

## Comparative Literature and Language

No.	Crd't.	Sec.	Day	Time	Instructor
AUTUMN QUARTER					
101	3	L	M W F	10	
		L	M W F	1	
		L	M	730-10 P	
		L	T R	5 - 630	

## WINTER QUARTER

102	3	L	M W F	10	
		L	M W R	1	
		L	M	730-10 P	
		L	T R	5 - 630	

## SPRING QUARTER

103	3	L	M W F	10	
		L	M W F	1	
		L	M	730-10 P	
		L	T R	5 - 630	

## Economics

No.	Crd't.	Sec.	Day	Time	Instructor
AUTUMN QUARTER					
201	5	L	M W	730-10 P	
WINTER QUARTER					
201	5	L	M W	730-10 P	
SPRING QUARTER					
402	5	L	M W	730-10 P	

## Education

No.	Crd't.	Sec.	Day	Time	Instructor
AUTUMN QUARTER					
108	3	L	R	5 - 730	
		L	T	5 - 730	
WINTER QUARTER					
108	3	L	R	5 - 730	
SPRING QUARTER					
108	3	L	T	5 - 730	
435	5	L	T R	5 - 730	
460	4	L	T R	5 - 730	
461	3	L	R	730-10 P	

## Engineering Graphics

No.	Crd't.	Sec.	Day	Time	Instructor
AUTUMN QUARTER					
111	3	L	M W	730-10 P	
WINTER QUARTER					
112	3	L	M W	730-10 P	

## English

No.	Crd't.	Sec.	Day	Time	Instructor
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## AUTUMN QUARTER

101	3	L	M W F	9	
		L	M W F	11	
		L	M W F	2	
		L	M W F	3	
		L	M W F	4	
		L	T R	6 - 730	
		L	T R	9 - 1030	
		L	T R	11 - 1230	
		L	T R	3 - 430	
		L	T R	5 - 630	
		L	T R	730-9 P	
103	3	L	M W F	5	
		L	T R	6 - 730P	
240	5	L	MTWRF	12	
290	5	L	MTWRF	5	

## WINTER QUARTER

101	3	L	M W F	5 - 630	
102	3	L	M W F	9	
		L	M W F	11	
		L	M W F	2	
		L	M W F	4	
		L	M W F	6 - 730P	
		L	M W F	730-9 P	
		L	T R	9 - 1030	
		L	T R	11 - 1230	
		L	T R	3 - 430	
		L	T R	5 - 630	
		L	T R	730-9 P	
220	5	L	MTWRF	5	
260	5	L	MTWRF	12	
293	5	L	M W F	5 - 730	

## SPRING QUARTER

102	3	L	M W F	5 - 630	
103	3	L	M W F	9	
		L	M W F	11	
		L	M W F	2	
		L	M W F	4	
		L	M W F	6 - 730P	
		L	T R	730-9 P	
		L	T R	9 - 1030	
		L	T R	11 - 1230	
		L	T R	3 - 430	
		L	T R	5 - 630	
		L	T R	730-9 P	
261	5	L	MTWRF	5	
262	5	L	MTWRF	12	
294	5	L	M W F	5 - 730	

## Fine Arts

No.	Crd't.	Sec.	Day	Time	Instructor
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## AUTUMN QUARTER

111	3	L	M W F	1	
290	3	B	MTWRF	2 - 4	

## WINTER QUARTER

111	3	B	M W F	10	
190	3	L	MTWRF	4	

## SPRING QUARTER

111	3	L	M W F	1	
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## French

No.	Crd't.	Sec.	Day	Time	Instructor
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## AUTUMN QUARTER

101	5	L	M W F	5 - 630	
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## WINTER QUARTER

102	5	L	M W F	5 - 630	
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## SPRING QUARTER

103	5	L	M W F	5 - 630	
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## Geography

No.	Crd't.	Sec.	Day	Time	Instructor
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## WINTER QUARTER

240	5	L	T R	730-10 P	
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## SPRING QUARTER

220	5	L	T R	730-10 P	
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## Geology

No.	Crd't.	Sec.	Day	Time	Instructor
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## AUTUMN QUARTER

100	5	L	M W F	730-10 P	
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## WINTER QUARTER

100	5	L	T R	5 - 730P	
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## SPRING QUARTER

101	5	L	M W F	730-1030P	
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## History

No.	Crd't.	Sec.	Day	Time	Instructor
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## AUTUMN QUARTER

101	5	L	MTWRF	12	
103	5	L	MTWRF	11	
		L	MTWRF	3	
		L	M W F	730-10 P	
121	5	L	MTWRF	2	

## WINTER QUARTER

101	5	L	M W F	5 - 730	
102	5	L	MTWRF	12	
104	5	L	MTWRF	11	
		L	MTWRF	3	
122	5	L	MTWRF	2	

## SPRING QUARTER

102	5	L	MTWRF	3	
103	5	L	MTWRF	11	
104	5	L	MTWRF	5 - 730	
123	5	L	MTWRF	2	

## Home Economics

No.	Crd't.	Sec.	Day	Time	Instructor
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## AUTUMN QUARTER

220	5	L	T R	730-10 P	
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Mathematics

No.	Crd't.	Sec.	Day	Time	Instructor
AUTUMN QUARTER					
101	5	L	MTWRF	4	- 730
		L	M W	5	
150	5	L	MTWRF	11	
		L	MTWRF	2	
153	5	L	MTWRF	1	
WINTER QUARTER					
116	5	L	MTWRF	4	- 730
121	5	L	M W	5	
150	5	L	MTWRF	11	
151	5	L	MTWRF	2	
254	5	L	MTWRF	1	
SPRING QUARTER					
101	5	L	MTWRF	4	- 730P
105	5	L	W	5	
117	5	L	MTWRF	1	
122	5	L	MTWRF	11	
152	5	L	MTWRF	2	

Music

No.	Crd't.	Sec.	Day	Time	Instructor
AUTUMN QUARTER					
141	3	L	T R	2	- 330
191	1	P	T R	4	
270	3	DB	MTWRF	10	
WINTER QUARTER					
141	3	L	M W F	1	- 330
142	3	L	T R	2	
191	1	P	T R	4	
SPRING QUARTER					
143	3	L	M W F	4	
191	1	P	T R	4	
271	2	D	MTWR	3	

Philosophy

No.	Crd't.	Sec.	Day	Time	Instructor
AUTUMN QUARTER					
101	5	L	T R	730-10	P
WINTER QUARTER					
150	5	L	T R	730-10	P
SPRING QUARTER					
130	5	L	T R	730-10	P

Physics

No.	Crd't.	Sec.	Day	Time	Instructor
AUTUMN QUARTER					
231	5	L	T	4	- 630

				R	4 - 530
				R	530- 730
WINTER QUARTER					
232	5	L	T	4	- 630
		L		R	4 - 530
		L		R	530- 730P
SPRING QUARTER					
233	5	L	T	4	- 630
		B		R	4 - 530
				R	530- 730

Political Science

No.	Crd't.	Sec.	Day	Time	Instructor
SPRING QUARTER					
100	5	L	M W	730-10	P

Psychology

No.	Crd't.	Sec.	Day	Time	Instructor
AUTUMN QUARTER					
100	5	L	MTWRF	1	- 730
		L	MTWRF	4	
		L	M W	5	
		L	T R	730-10	P
120	3	L	M W F	1	
WINTER QUARTER					
100	5	L	MTWRF	10	- 730P
101	5	L	MTWRF	1	
120	3	L	M W F	2	
230	5	L	T R	5	- 730P
		L	MTWRF	11	
SPRING QUARTER					
100	5	L	MTWRF	1	- 730
101	5	L	MTWRF	10	
120	3	L	M W F	5	
230	5	L	T R	5	- 730

Sociology

No.	Crd't.	Sec.	Day	Time	Instructor
AUTUMN QUARTER					
101	5	L	M W	5	- 730
		L	MTWRF	3	
WINTER QUARTER					
101	5	L	M W	5	- 730P
202	5	L	T R	5	- 730P
SPRING QUARTER					
202	5	L	T R	5	- 730
220	5	L	T R	730-10	P

Spanish

No.	Crd't.	Sec.	Day	Time	Instructor
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AUTUMN QUARTER

101 5 L M W F 5 - 630  
WINTER QUARTER

102 5 L M W F 5 - 630  
SPRING QUARTER

103 5 L M W F 5 - 630

Speech

No. Crd't. Sec. Day Time Instructor

AUTUMN QUARTER

105 5 L T R 5 - 730

WINTER QUARTER

110 5 L T R 5 - 730P  
SPRING QUARTER

165 5 L T R 5 - 730

Zoology

No. Crd't. Sec. Day Time Instructor

AUTUMN QUARTER

101 5 L MTWRF 4  
WINTER QUARTER

101 5 L T R 730-10 P  
SPRING QUARTER

101 5 L MTWRF 12

NEWARK CAMPUS

Accounting

No. Crd't. Sec. Day Time Instructor

WINTER QUARTER

211 5 L M W 4 - 630  
SPRING QUARTER

212 5 L M W 4 - 630

Agriculture Survey Courses

No. Crd't. Sec. Day Time Instructor

AUTUMN QUARTER

101 1 L F 5 - 7

Agronomy

No. Crd't. Sec. Day Time Instructor

WINTER QUARTER

200 5 L M W 730-10 P

Animal Science

No. Crd't. Sec. Day Time Instructor

WINTER QUARTER

100 5 L T R 4 - 630

Anthropology

No. Crd't. Sec. Day Time Instructor

AUTUMN QUARTER

261 5 L MTWRF 6

Biology

No. Crd't. Sec. Day Time Instructor

AUTUMN QUARTER

102 5 LB MTWRF 9 P  
LB MTWRF 10  
LB MTWRF 12  
LB MTWRF 2  
LB M W 5 - 730

WINTER QUARTER

102 5 LB MTWRF 9  
LB MTWRF 10  
LB M W 5 - 730P

SPRING QUARTER

102 5 LB MTWRF 11  
LB MTWRF 4

Botany

No. Crd't. Sec. Day Time Instructor

WINTER QUARTER

102 5 LB MTWRF 1  
LB MTWRF 3

SPRING QUARTER

102 5 LB MTWRF 2  
LB MTWRF 3

Chemistry

No. Crd't. Sec. Day Time Instructor

AUTUMN QUARTER

121 5 L T R 4  
R F 4  
B W 4 - 7

WINTER QUARTER

101 5 L M W F 9  
R F 10  
B T 9 -12  
B R 9 -12  
122 5 L T R 4  
R W 4  
B M 4 - 7  
B F 4 - 7

SPRING QUARTER

102 5 L M W F 9  
R F 10  
B T 9 -12  
B R 9 -12  
123 5 L M W F 4  
B T R 4 - 7

Comparative Literature and Language

No. Crd't. Sec. Day Time Instructor

AUTUMN QUARTER

101 3 R T R F 9  
R T R F 11

WINTER QUARTER

102 3 R M W F 9

SPRING QUARTER

103 3 R M W F 9

Economics

No. Crd't. Sec. Day Time Instructor

AUTUMN QUARTER

201 5 L M W 4 - 630

WINTER QUARTER

402 5 L T R 4 - 630

SPRING QUARTER

442 5 L T R 4 - 630

Education

No. Crd't. Sec. Day Time Instructor

AUTUMN QUARTER

243 5 B M W 730-10 P  
460 4 LR M W 4 - 6  
B ARR

WINTER QUARTER

108 3 L W 5 - 730  
461 3 D T R 5 - 630

Engineering Graphics

No. Crd't. Sec. Day Time Instructor

AUTUMN QUARTER

111 3 LB T R 5 - 730

WINTER QUARTER

111 3 LB M W 5 - 730  
112 3 LB T R 5 - 730

SPRING QUARTER

112 3 LB M W 5 - 730

Engineering Mechanics

No. Crd't. Sec. Day Time Instructor



## SPRING QUARTER

210 5 D MTWRF 3

## English

No. Crd't. Sec. Day Time Instructor

## AUTUMN QUARTER

101 3 D M W F 9  
 M W F 10  
 D D M W 10  
 M W 11  
 M W 12  
 D M W 1  
 D M W F 1  
 D M W F 2  
 D M W F 3  
 D M W 730- 9 P  
 103 3 D M W F 1  
 290 5 D MTWRF 2

## WINTER QUARTER

101 3 D M W F 10  
 M W F 1  
 102 3 D M W F 9  
 M W F 10  
 D M W F 11  
 D M W F 12  
 D M W F 1  
 D M W F 2  
 D M W F 3  
 D M W 730- 9 P  
 260 5 D MTWRF 2  
 293 5 D MTWRF 11

## SPRING QUARTER

102 3 D M W F 1  
 M W F 3  
 103 3 D M W F 9  
 M W F 10  
 D M W F 11  
 D M W F 12  
 D M W F 1  
 D M W F 2  
 D M W F 3  
 D M W F 730- 9 P  
 220 5 D MTWRF 10  
 261 5 D MTWRF 2  
 294 5 D MTWRF 11

## Fine Arts

No. Crd't. Sec. Day Time Instructor

## AUTUMN QUARTER

290 5 B MTWRF 8 -10  
 B MTWRF 10 -12

## WINTER QUARTER

111 3 L M W F 9  
 L M W F 11

## SPRING QUARTER

290 5 B MTWRF 730- 930P

## French

No. Crd't. Sec. Day Time Instructor

## AUTUMN QUARTER

101 5 R MTWRF 2  
 104 5 R M W F 2 - 330

## WINTER QUARTER

102 5 R MTWRF 2

## SPRING QUARTER

103 5 L MTWRF 2

## Geography

No. Crd't. Sec. Day Time Instructor

## AUTUMN QUARTER

220 5 B T R 9

## WINTER QUARTER

240 5 D MTWRF 11

## SPRING QUARTER

220 5 LB MTWRF 9  
 290 5 D MTWRF 11

## Geology

No. Crd't. Sec. Day Time Instructor

## AUTUMN QUARTER

100 5 LB MTWRF 11  
 LB MTWRF 3

## WINTER QUARTER

101 5 LB MTWRF 3

## SPRING QUARTER

100 5 L MT RF 3  
 B W 3  
 B W 2

## Health Education

No. Crd't. Sec. Day Time Instructor

## SPRING QUARTER

300 3 L W 5 - 730

## History

No. Crd't. Sec. Day Time Instructor

## AUTUMN QUARTER

103 5 L MTWRF 10  
 L MTWRF 2  
 121 5 L MTWRF 11  
 L MTWRF 2

History (Cont'd)

WINTER QUARTER

104	5	L	MTWRF	10
		L	MTWRF	2
121	5	L	MTWRF	2
122	5	L	MTWRF	11

SPRING QUARTER

122	5	L	MTWRF	11
123	5	L	MTWRF	2

Mathematics

No.	Crd't.	Sec.	Day	Time	Instructor
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AUTUMN QUARTER

101	5	D	MTWRF	4	
		D	T R	5 - 730	
116	5	D	T R	5 - 730	
121	5	LR	MTWRF	10	
123	5	LR	T R	5 - 730	
150	5	D	T R	5 - 730	
		D	MTWRF	11	
151	5	D	MTWRF	2	
153	5	D	T R	5 - 730	

WINTER QUARTER

105	3	LR	W	5 - 730	
116	5	D	MTWRF	4	
121	5	LR	M W	5 - 730	
150	5	D	MTWRF	10	
151	5	D	MTWRF	11	
152	5	D	MTWRF	2	
254	5	D	M W	5 - 730	

SPRING QUARTER

101	5	D	M W	5 - 730	
117	5	D	MTWRF	2	
122	5	RL	MTWRF	3	
152	5	D	MTWRF	11	
255	5	D	M W	5 - 730	

Music

No.	Crd't.	Sec.	Day	Time	Instructor
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AUTUMN QUARTER

191	1	B	M W R	12	
270	3	DB	MTWRF	3	

WINTER QUARTER

191	1	B	M W F	12	
271	2	D	MTW F	3	

SPRING QUARTER

141	3	LR	T R F	3	
191	1	B	M W R	12	
370	3	DB	MTWRF	4	

Philosophy

No.	Crd't.	Sec.	Day	Time	Instructor
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AUTUMN QUARTER

100	3	LR	T R F	4	P
WINTER QUARTER					
101	5	LR	M W	4 - 630	

Physics

No.	Crd't.	Sec.	Day	Time	Instructor
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AUTUMN QUARTER

111	5	LR	MTW F	2	
		B	R	2 - 4	
231	5	LR	MT R F	4	
		B	W	4 - 6	

WINTER QUARTER

232	5	LR	MTW F	4	
		B	R	4 - 6	

SPRING QUARTER

233	5	LR	MTWRF	4	
		B	R	4 - 6	

Political Science

No.	Crd't.	Sec.	Day	Time	Instructor
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AUTUMN QUARTER

100	5	L	MTWRF	10	
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Psychology

No.	Crd't.	Sec.	Day	Time	Instructor
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AUTUMN QUARTER

100	5	L	MTWRF	9	
		L	MTWRF	10	
		L	MTWRF	12	
		L	MTWRF	2	
		L	MTWRF	4	

WINTER QUARTER

101	5	L	MTWRF	9	
		L	MTWRF	10	
		L	MTWRF	2	

SPRING QUARTER

230	5	D	MTWRF	9	
		D	MTWRF	10	
		D	MTWRF	4	

Rural Sociology

No.	Crd't.	Sec.	Day	Time	Instructor
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## SPRING QUARTER

105 5 D M W 4 - 630

## Sociology

No. Crd't. Sec. Day Time Instructor

## AUTUMN QUARTER

101 5 D M W 2  
D T R 4

## WINTER QUARTER

101 5 D MTWRF 2  
D MTWRF 4  
202 5 D MTWRF 3

## SPRING QUARTER

202 5 D MTWRF 3

## Spanish

No. Crd't. Sec. Day Time Instructor

## AUTUMN QUARTER

101 5 R MTWRF 2

## WINTER QUARTER

102 5 R M WRF 2

## SPRING QUARTER

103 5 R MTWRF 2

## Speech

No. Crd't. Sec. Day Time Instructor

## AUTUMN QUARTER

165 5 L M W F 10  
L M W F 11  
R T 9  
R R 9  
R T 10  
R R 10  
R T 11  
R R 11  
R T 3  
R R 3  
ARR

## WINTER QUARTER

110 5 DR MTWRF 10  
DR MTWRF 3  
235 3 LR T 5 - 730  
265 1 B ARR

## SPRING QUARTER

105 5 DR MTWRF 11  
DR MTWRF 3  
265 1 B ARR

## Zoology

No. Crd't. Sec. Day Time Instructor

## WINTER QUARTER

101 5 LB MTWRF 2  
LB MTWRF 4

## SPRING QUARTER

101 5 LB MTWRF 9  
LB MTWRF 10





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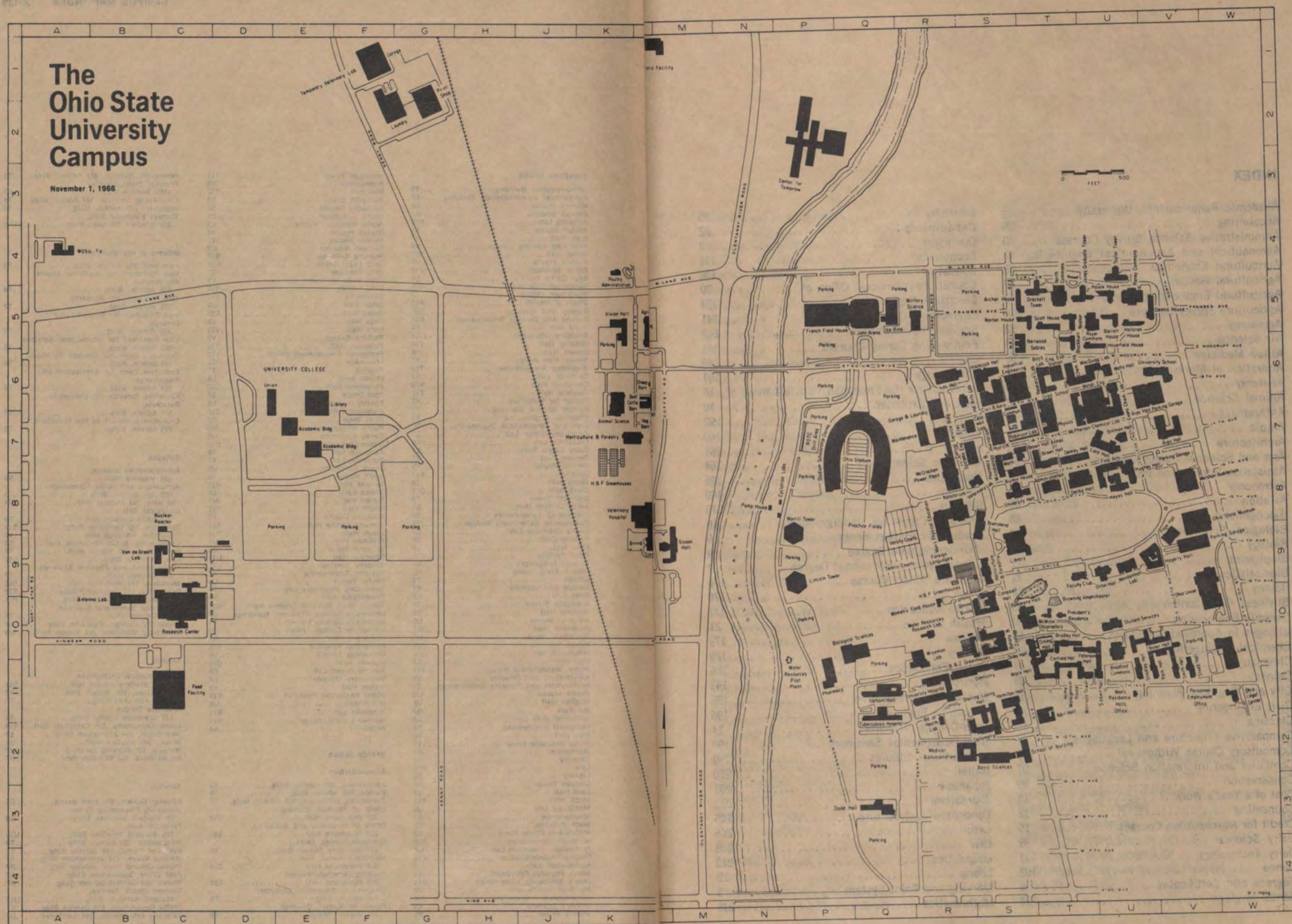
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## **The Ohio State University**

Columbus, Ohio, 43210, Telephone 293-3148 (Area Code 614).

Mail for specific members of the Board of Trustees and the Administration should carry the following general address:  
The Ohio State University, 190 North Oval Drive, Columbus, Ohio 43210.

Administration offices are open Monday through Friday from 8 to 5 and Saturday from 8 to 12 noon.

### **Offices for Specific Information**

#### **Office of Admissions**

102 Administration Building, 190 North Oval Drive

Application Requests, Telephone 293-8412

Undergraduate Admissions, Telephone 293-1431

Graduate Admissions, Telephone 293-1531

Professional Admissions, Telephone 293-1321

#### **Office of the Bursar**

200 Administration Building, 190 North Oval Drive, Telephone 293-4209

#### **Office of Continuing Education**

109 Administration Building, 190 North Oval Drive, Telephone 293-4209

#### **Office of the Dean of the Graduate School**

137 Graduate School Building, 164 West 19th Avenue, Telephone 293-6031

#### **Office of the Executive Dean for Student Relations**

105 Administration Building, 190 North Oval Drive, Telephone 293-2051

#### **Office of the Registrar**

203 Administration Building, 190 North Oval Drive, Telephone 293-7941

#### **Office of Student Financial Aids**

200 Student Services Building, 154 West 12th Avenue, Telephone 293-6916

The Adviser Approval Form is provided for use by students whose colleges require adviser approval of academic programs. Since Autumn Quarter schedules must be returned prior to August 31, this form is to be used in obtaining approval of programs prior to the summer vacation period when the student and/or his adviser may not be on campus. Only one form need be used unless the adviser or college requests two.

The student should meet with his adviser to decide on an instructional program, complete the form in ink, and have his adviser sign where indicated. The student will keep the completed Adviser Approval Form and include it with his Autumn Quarter registration materials available after July 30.

Students having questions concerning the form or its use should check with their adviser or college office.

All students enrolled in Graduate School and the College of Agriculture and Home Economics are required to submit the Adviser Approval Form with their registration cards.

Name \_\_\_\_\_ Last \_\_\_\_\_ First \_\_\_\_\_ Middle \_\_\_\_\_ Student Number \_\_\_\_\_  
Major \_\_\_\_\_ Program of Courses for \_\_\_\_\_ Quarter, 19\_\_\_\_

	Department	Course Number	Credit Hours	M	Tu	W	T	F	S
<b>Approved Alternate Courses</b>	<b>Substitute</b>			<b>For</b>					
	Department	Course Number	Credit Hours	Department			Course Number		

Program Approved \_\_\_\_\_  
 Adviser's Signature \_\_\_\_\_ Date \_\_\_\_\_

**ADVISER APPROVAL FORM** Complete in blue or black ink

Name \_\_\_\_\_ Last \_\_\_\_\_ First \_\_\_\_\_ Middle \_\_\_\_\_ Student Number \_\_\_\_\_  
Major \_\_\_\_\_ Program of Courses for \_\_\_\_\_ Quarter, 19 \_\_\_\_\_

Department		Course Number	Credit Hours	M	Tu	W	T	F	S
<b>Approved Alternate Courses</b>	<b>Substitute</b>			<b>For</b>					
	Department	Course Number	Credit Hours	Department			Course Number		

Program Approved \_\_\_\_\_  
 Adviser's Signature \_\_\_\_\_ Date \_\_\_\_\_

**ADVISER APPROVAL FORM** Complete in blue or black ink





### **Books in the 1968-69 Catalog Series**

- 1 General Information for Undergraduates
- 2 College of Administrative Science
- 3 College of Agriculture and Home Economics
- 4 College of The Arts
- 5 College of Biological Sciences
- 6 College of Dentistry
- 7 College of Education
- 8 College of Engineering
- 9 Graduate School
- 10 College of Humanities
- 11 College of Law
- 12 College of Mathematics and Physical Sciences
- 13 College of Medicine
- 14 College of Optometry
- 15 College of Pharmacy
- 16 College of Social and Behavioral Sciences
- 17 College of Veterinary Medicine
- 18 University Academic Policies and Course Offerings

Initial copies of specific college books are available, without charge, together with appropriate sets of application forms from:

The Ohio State University  
Admissions Office  
102 Administration Building  
190 North Oval Drive

and will be sent to inquiring persons when specifically requested. When requesting application forms through the mail applicants should briefly specify their previous educational background and their proposed program of study.

Currently enrolled students, upon presentation of the College Catalog Coupon found in their Fee Packet, obtain from their college office, each year soon after new issues have come off the press, Book 18 and the Book(s) relating to the College(s) within which they are registered. Newly enrolled students will automatically receive their appropriate College Catalog Books when they begin to schedule classes. Additional or replacement copies can be purchased from the University Bookstore.

Within Ohio, copies of books in the series are available for examination in offices and libraries of high schools, colleges, and universities. Copies also are available for examination in public libraries, U. S. government offices, major State of Ohio government offices in Columbus, Cooperative Extension offices in each of the state's 88 counties, and in administrative offices of the University as well as in many libraries and colleges outside Ohio.



